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London Fires.

"But it was a most acceptable thing to hear their discourse [at Gresham College] and see their experiments; which were this day on fire, and how it goes out in a place where the ayre is not free, and sooner out where the ayre is exhausted, which they showed by an engine on purpose."—Pepys' Diary, February 15, 1664.

THE pitying smile which invariably greets the advocate of a "fireproof" building material, and the humorous sarcasms of the popular Press commonly evoked when a so-called "fireproof" edifice is destroyed by fire, will not materially aid in reducing the deplorable length of the London fire list, which every month bears testimony to the unnecessary and discreditable waste of life and property which is constantly occurring within the Metropolis.

Throughout the present century strenuous and persistent efforts have been made to construct buildings capable of defying the omnipotent destroyer, and for many years past a large sum of money has been annually devoted to the retention of the services of a brigade of men who stand ever prepared to do battle with the flames, and who invariably carry out their arduous and often dangerous work with a valour which has won for them universal admiration and respect. But the sacrifice of every consideration to economy of cost in the erection of buildings, and the conservatism shown in the equipment of the Brigade and in the provision of fire-alarms, have to a great extent rendered futile all attempts to reduce the losses by fire to the possible minimum. It may be true that it is impossible in practice to construct a really fireproof building, but that is an insufficient reason for the presence of the numerous fire-traps for which London is conspicuous.

All sound building, as Captain Shaw once remarked, is more or less good building for resisting the effects of heat, and all scamping is dangerous. And if this is true when referring to ordinary residences, it is even more so when applied to jerry-built sky-scrapers. The day has passed when a building constructed largely of non-combustible materials is regarded as necessarily fireproof, for it is recognised that these non-combustible materials may behave in such a manner, under the action of heat generated by the combustion of the furniture of a room, that the building is rendered more dangerous than if built with the timber the non-combustible materials are intended to replace. Unprotected iron and steel girders, and staircases of stone, at one time most popular, are now known to be liable to behave in a treacherous manner when subjected to the conditions of an ordinary house conflagration.

Nevertheless, in spite of the just restoration to popular favour of hard timber, it would be folly not to admit the value of the inexpensive processes that have recently been adopted for rendering timber less combustible. Without appreciably altering the appearance or building value of timber, it may by suitable chemical treatment be rendered remarkably fire-resistant, and the practical value of timber so treated was well demonstrated by the behaviour of ships under fire in the recent Spanish-American war. On the other hand, iron and steel girders, when properly protected from intense heat, are by no means to be despised, since when so protected they are less readily distorted by fire, and have many useful properties peculiar to themselves.

But important as it is to employ materials that will not burn, bend, or crumble to pieces under the influence of fire, it is perhaps of even more importance to so design the building that the inmates may readily escape, and that the admission of air may be limited as much as possible. The usual practice of throwing open both doors and windows upon the outbreak of fire has been responsible for many a complete "burn out," and Professor Lewes has recently drawn attention to the danger of the increasing popularity of house-fronts constructed mainly of glass, which breaks in the earliest stages of a fire, leaving huge openings which admit an unlimited air supply, and allow the great tongues of flame produced by the rapid combustion to shoot out unchecked and lick the buildings upon the opposite sides of the street. Captain Shaw pointed out long ago the danger of the air spaces lying between what he termed "sham" ceilings and the adjacent floor boards, and the danger of the common "lift" was shown in the recent Hyde Park-court fire. Fire, in the common acceptance of the term, cannot exist without air; and if the air supply can be cut off, the fire outbreak may readily be subdued. If, on the other hand, the supply of air is unlimited, and the combustion products can find a ready escape, the air within the building becomes highly heated, rushes upward owing to its being of lighter gravity than the cool air, and by its uprush produces the equivalent of a forced draught, and thus encourages the fire to a yet fiercer fury.

When, however, the architect has done all in his power by skilful design and the use of fire-resisting materials to minimise the risk and danger of fire in a building, much may yet be done by the occupier to still further reduce the possibility of an outbreak. But it is here that the most discouraging apathy is met. The callousness of the average householder in the absence of visible danger is as remarkable as his frantic behaviour when rudely awakened by the "smell" of fire. The carelessness of the householder is then an insignificant fault compared with the wickedness of the builder in neglecting to provide easy means of exit, and the parsimony of the landlord in failing to provide the most improved means of fire extinction.

Accidents with oil lamps; the heedless throwing aside of lighted matches and cigar and cigarette ends; leaving coal fires to burn themselves out unwatched—these are all dangers for which the occupier must remain solely responsible. In London some of these dangers may be avoided by the judicious use of electricity and gas; although, as regards the latter in particular, we should like to see a suitable system adopted for the periodical testing of fittings. But until human nature is materially changed, fires due to carelessness and incendiarism must necessarily

occur, and a properly equipped fire brigade must remain an imperative necessity in all centres of civilisation.

When one hears the hoarse cry of the firemen, half lost in the roar of the surrounding traffic, which notifies the approach of the horsed vehicle which, with its helmeted heroes and spark-vomiting furnace, speeds onwards to its destination, the mind dimly appreciates the conservatism which pervades the managing department of the Metropolitan Fire Brigade. Is it to consideration of equine nerves that this adherence to the most primitive method of warning is due? We imagine that the simple gong, elsewhere adopted, would not have a more alarming effect upon the sensitive horse than the stirring shouts of strong-lunged men; and the effective motor-car syrens now so frequently heard in the London streets do not appear to produce a very disturbing effect upon the equine traffic. And why not give trial to vehicles driven by electricity or other power, such as are used in Paris? Again, the *Thermostat* recently called attention to the numerous disadvantages attendant upon the use of coal as a source of power for fire engines, and suggested the use of electrical engines. Without discussing the practicability of such a suggestion, we may dismiss it with the remark that it is not in London that the writer should look for the first encouragement of so radical a proposal. Nor, for obvious reasons, is electricity likely to be so successful in London, financially, as it might be in certain American towns.

A study of the details of recent London fires shows that great delay repeatedly occurs between the commencement of the fire and the receipt of notification of the outbreak by the Brigade. If some system such as that recently introduced by Pearson* were universally adopted throughout the metropolis, and every building, great and small, were thus placed in direct communication with the nearest fire-station, even in the absence of any person within the building, these delays would be practically impossible.

Outbreaks of fire will, doubtless, always occur with more or less frequency in all large towns, but they need not, and should not, be so frequent and so destructive as they are at the present day; and the loss of life by fire might, by the adoption of simple precautions, be reduced to one-tenth of its present total. The work of the British Fire Prevention Committee, and the attention which architects are giving to the subject of fire prevention, should do much to lessen fire risks; but unless the chiefs of the fire brigades are given a free hand in the provision of the most effective fire-fighting apparatus that human ingenuity can devise, the national losses from fire must remain greater than they ought to be. In the endeavour to prevent and extinguish fires no policy can be more foolish than that of excessive economy.

THE ALLIANCE OF THE GREAT WESTERN AND GREAT CENTRAL RAILWAY COMPANIES.

THE recent Parliamentary contests between the Great Western and the Great Central Railway Companies on the one hand and the Metropolitan Railway Company on the other, which have ended in the defeat of the latter, are of more general interest and importance than the ordinary Parliamentary conflicts at Westminster. They are instructive as showing the influences which affect the development of railway enterprise in England, and they seem to indicate further movements of the great railways in the near future.

It has to be remembered that up to a few years ago the Metropolitan Railway Company and the Manchester and Sheffield and Lincolnshire Railway, as it then was, had the same Chairman, Sir Edward Watkin. It was the policy of this enterprising and ambitious railway manager to take the Metropolitan northward and the Sheffield system southward, and thus gradually to form a junction between the two systems. How he toiled, how he cajoled the shareholders of the Metropolitan line who dreaded extensions into the country, is a matter of railway history. Now he was going to Harrow; having got there, the line must go a little further, and so the line grew little by little. That policy has undoubtedly been justified; since the suburban traffic has become of immense importance to the Metropolitan Railway. But there is no doubt that Sir Edward Watkin looked forward to the complete amalgamation of the two systems. That amalgamation grew to the extent that this spring the Great Central line—as the Sheffield Company is now called—opened its London extension and began to run trains partly over the Metropolitan line from a point north of Aylesbury to a point a short distance from London, where the Great Central line diverged to the Marylebone terminus. But, meanwhile, Sir Edward Watkin has retired from railway management, and his personal ambition and views no longer control the two companies which he governed for so long a time. Two new railway princes may be said to have divided Sir Edward Watkin's kingdom, one having charge of the Great Central line, another of the Metropolitan. The relations between the two lines have ceased to be friendly, and so the Great Central has concluded an alliance with the Great Western—the result of which is that the Great Central will diverge on to the new Great Western line instead of on to the Metropolitan line. It will run over it for a certain distance and then diverge to its own terminus.

The point of interest in all this is the effect of railway personalities. The union and joint working of the Metropolitan and Great Central companies was the idea and object of one man. As soon as he disappeared, other personalities came into power, with the result which is seen. The railway manager is an able and often an ambitious person, and he makes war and alliances after the manner of a Continental sovereign. Sir Edward Watkin planned one large scheme, and worked at it for years. As it was nearing completion he had to give up his life work, and new and equally large schemes filled the mind of one of his successors. It shows how much the travelling public is in the hands of individuals, and it also shows how difficult it is to effect improvements in lines when the managers are engaged in schemes of policy, instead of being occupied in managing existing lines.

But when we come to look at this alliance between the Great Western Railway and the Great Central, it is obvious that it is the beginning of a union of traffic between these two lines which will ultimately make one large Western and Central Railway system. It is clear that there will be no reason why arrangements should not be made to run Great Western trains proper into the Marylebone terminus of the Great Central Company; to have, in fact, one homogeneous system. All sorts of influences in effect have to combine before there can be a complete amalgamation of these two companies. But the tendency of the time is for commercial undertakings to combine. When two companies such as the Great Western and the Great Central accomplish the initial link it can scarcely be doubted that a practical union must one day follow. Personal questions may again have their influence, and in time the now sulking Metropolitan may return to the arms of the Great Central and help to complete the union of railways which appears probable in the west of London. That such a union must be beneficial both to the travelling and the business public can hardly be doubted, since it gives great opportunities for the interchange of traffic, and does not, as in the case of the lines south of London, wholly prevent competition. But with this for the moment we are not concerned. What we rather desire to call attention to are some of the points to which the struggle which recently concluded before Lord Spencer's House of Lords Committee appear to give rise, the personal influences at work, the probabilities of the future.

LITHOGRAPHIC ART.

THE essential characteristic of lithography, that which distinguishes it from every other means of multiplying copies of a design, is that it is surface printing, without either relief or intaglio. In etching and steel engraving the lines are bitten into the plate with acid; in wood engraving the spaces between the lines are cut away and the lines left in relief. In lithography properly so called, the surface of the stone is not meddled with. But it seems that Senefelder, who discovered the process, and of whom various centenaries have been recently celebrated, did so by a mere accident, and when he was trying to use stone for an etching process, contrary however to that employed in what is usually called etching on copper, for the spaces were to be eaten away and the lines left in relief. It hardly seems probable that the soft stone used for lithography would have stood many printings when treated in that way. According to the statement in Mr. Pennell's sumptuous work on lithography,* Senefelder's discovery arose indirectly from his inability to draw or write the reverse way. Accordingly he took a gummy-surfaced paper, on which he wrote the direct way, and laying it face downwards on the stone, ran it through the press, when the writing came off bodily on to the stone in reverse. The ink he wrote with was a varnish, and he was about to etch the stone, when it occurred to him that if the writing would transfer from the paper to the stone, it might equally be made to transfer from the stone back to the paper. It has been generally supposed, we believe, that what is now called "transfer paper" was invented as an improvement on

* See the *Builder*, April 8, 1899 ("Notes").

* "Lithography and Lithographers; some Chapters in the History of the Art." With technical remarks and suggestions by Joseph and Elizabeth Robins Pennell: with many illustrations. London; T. Fisher Unwin; 1898.

the practice of drawing directly on the stone, or rather as an easy method for the benefit of those who were puzzled by reverse drawing. It appears however that it was this very difficulty of reverse drawing which led to Senefelder's successful experiment.

Drawing on transfer paper is, however, a kind of "reading-made-easy" method, not adopted (or we should hope not) by those who wish to make an artistic use of lithography; for something is lost in the transference, not to speak of the possible danger of a mishap in transferring. Every one who has tried pen drawing on the smooth transfer paper, covered with a composition, will remember what exasperating work it was, the pen constantly having a tendency to drag up the composition surface if pressed at all, or not to mark if pressed too lightly. Drawing directly on the stone the pen works smoothly enough, but the lines always spread slightly; it is difficult if not impossible to get a very fine line. All this difficulty is done away with now by photo-lithography, by which the drawing is reproduced photographically to any required diminution (within certain limits), so that lines which were comparatively coarse in the original drawing may appear of the greatest delicacy in the reproduction. But neither pen-drawing on the stone or the transfer paper, nor the photo-lithography of line drawings on ordinary paper, constitute lithography in the artistic sense; they do not realise the texture and quality which differentiate it from other methods. The quality of lithography is obtained by the use of the so-called lithographic "chalk" (really a greasy compound) on the roughened or grained surface of the stone, or on a grained transfer paper. The chalk drawing on grained transfer paper has not the disadvantages of pen-drawing on the smooth transfer paper; the chalk works on it as easily as on the stone, and the transferring process can be carried out with less loss of the original effect. Yet even so we think every artist who wished to express his soul in lithography would prefer to draw directly on the stone. The only real drawback is the weight and cumbersome character of the stone; the reverse drawing need not be counted; if a man cannot familiarise his eye with reverse drawing it must be evident that Providence did not intend him for a draughtsman.

Men of the older generation among us will remember well enough that in their youth lithography had fallen into something like contempt in the artistic world, and nowhere more so than among architects. It was regarded as a common and vulgar method of artistic production, mainly owing to the fact that it had to a great extent been vulgarised. The ease with which surface shading might be put on by the light abrasion of the chalk over the grained surface had led to its employment to a great extent by facile book illustrators, who found it thus remarkably easy to get an "effect" such as was sufficient to please the average reader, and which is analogous to that obtained by the stump in pencil drawing. In spite of this ill-odour into which the process had fallen, as everything is "revived" now, there has been a revival of lithography, and some gifted artists have taken to it as a medium chiefly for light sketches of impressions, to which the easy manipulation renders it peculiarly subservient. It has in this respect the same kind of advantage as pencil drawing. But pencil drawing cannot be reproduced, in the artistic sense; for though there are various methods by which a reproduction of a pencil drawing can in a sense be made, none of them retain the precise quality and touch of the pencil. With the lithographic chalk the artist can sketch as freely as with pencil, and his sketch can be multiplied in precise reproduction both of texture and touch. In this respect therefore there is nothing else exactly like it. Mr. Pennell expresses the opinion, and probably rightly, that the commercial reign of lithography is over; that it will never again, with all the present methods of cheap reproduction, become a popular book-illustration medium. But he suggests that it still has an artistic future before it.

In France, though there has been a distinct revival of the interest in lithography lately, the art had not fallen into such forgetfulness as in England; at all events, the gap between the old and the new lithographers is much less. In France, it may be noted, the easy handling possible in lithography has led to its being very largely employed in works of caricature and satire, in which the attention is more caught by the caustic humour of the works than by their artistic quality. This is certainly the case with a great proportion of the works of Charlet, who often allowed his desire to be vitriolic in satire to carry him beyond the limits of true art into exaggeration and caricature. In England the use of lithography among the earlier artists of the century was more wholesome and innocent in its aims. It is significant that while Charlet is the prominent name among the earlier French lithographers of the century, J. D. Harding may be said to be the prominent name among the English ones. To Harding Mr. Pennell renders a justice which he has not always received. On the other hand we think he rather exaggerates Charlet at the expense of his (to our mind) more eminent pupil, Raffet. The latter was by far the greater illustrator of what may be called the Napoleonic legend, although he lived too late to have the knowledge of it at first hand; there is a heroic touch about his work which we do not find in Charlet. His drawing of Napoleon watching the effect of a charge of cavalry, under the title "L'Œil du Maître," is one of the most powerful representations of Napoleon ever produced; and the design which Mr. Pennell has given as an example of Raffet's work—"Ils grognaient mais le suivaient toujours," has an epic grandeur quite beyond the reach of Charlet. The modern French lithographers, such as Steinlen, seem also disposed to lay hold of lithography as a medium chiefly for social satire, with the exception of that gifted artist Fantin-Latour, a more remarkable individuality in art than his own generation seem as yet to have quite recognised. Mr. Whistler, who set the example of the revival in England, has given himself entirely to subjects of purely artistic interest, and has adopted lithography so far as a medium for very slight sketches of street corners, bits of the Thames, &c. Many of these are too slight to be taken into much account, and their importance has been absurdly exaggerated by his admirers; but they serve to indicate one class of work to which lithography is admirably suited—the slight sketch of a passing impression. His lightly sketched portrait of the author of the book, which forms the frontispiece, is a capital specimen of free rapid work, but defective as a portrait, inasmuch as the features are so little made out as to be hardly recognisable.

No one who has paid attention to the style of Mr. Pennell's magazine essays on artistic subjects will expect from him well-balanced criticism or anything like a cool and reasoned estimate of the respective values of the works of different artists. His writing is chatty and amusing, not the less so on account of the temper not infrequently displayed in it. But the book is valuable on account of the large collection of illustrations with which it is adorned, and which render it a kind of illustrative summary of the field of modern lithography. We do not see, it is true, what Sandys's well-known parody of Millais' "Sir Ysumbras," "drawn on zinc," has to do in a book on lithography, though one is willing to accept an excuse for the reproduction of a piece of work so interesting both artistically and historically.

NOTES.

Bexley Heath Asylum.

THE amendment moved by Mr. Beachcroft in the London County Council, "that a special committee be appointed to inquire into the circumstances which have led the Asylums Committee to involve the Council in so large an expenditure for the provision of the Heath Asylum, Bexley," was lost by 68 votes against 38, and ought not to have been moved at all, since the wording of it makes an assumption not justified by the facts. If the work is properly carried out, as we may assume that it will be under the management of so experienced an architect as Mr. G. T. Hine, the cost of 210*l.* per bed for the building alone, or 252*l.* per bed for building plus land and equipment, is by no means excessive, and the Council have got value for their money. The mistake seems to have consisted in adopting a block estimate of 350,000*l.* before the plans were so advanced as to admit of a more reliable estimate being arrived at. Some sums for special works which were not contemplated in the original contract are satisfactorily accounted for in the Report of the Asylums Committee; they arose out of unforeseen circumstances, and represented expenditure that was unavoidable. The principal item of the increase of cost was in the contract for the second section of the building, which amounted to 174,189*l.*, as against an estimated cost of 151,518*l.*; but nine months had intervened between the date of the estimate and the letting of the contract, during which time the price of building materials and labour had risen considerably. Although the amendment, which amounted to a vote of censure on the Asylums Committee, was lost, a rider to the Report was carried to the effect that the General Purposes Committee should report upon the circumstances. This may be just as well; but we do not expect they will find anything to report against except the inconvenience of forming estimates on insufficient data.

New Telephone System.

IN the new exchange which the National Telephone Company is building at Bristol a new system which has been extensively em-

ployed in America is being introduced. There will be no batteries in each subscriber's instrument, but only one large powerful battery of storage cells in the exchange itself. When the subscriber takes his telephone off the hook a small electric lamp at the exchange will light up, and this will give the signal to the operator. In the same way the clearing signal will be given by the subscriber hanging his telephone on the hook. There are many advantages in this method. The superintendent at the exchange will be able to see at a glance whether signals are being answered properly or not. At times of light load, also, one operator will be able to attend to many sections, and thus economies will be effected. The possible drawbacks appear to us to be the increased cost of maintenance at the exchange, owing to the arrangements necessary for charging the battery and the cost of the electrical energy used. The latter item will probably be a serious addition to the year's expenditure. The power now required to actuate the signals and the microphone circuits is very small, and the maintenance of the batteries costs very little. Another drawback is the difficulty of connecting up extension instruments. Mr. Gavey, however, in his recent lecture to the Society of Arts, praised this system of "central battery telephone exchange" very highly, and it will doubtless be extensively adopted in this country. The wonder is that automatic calling and clearing can be introduced with fairly simple connexions, and the small electric lamps will be a boon to the operators, as the lighting of these lamps does not jar on the nerves in the same way as the sharp click of the shutters and the ringing of bells do.

Seats for Shop Assistants.

THE passing of the Bill to make compulsory the supplying of seats for shop assistants is a measure which, though it may give some structural trouble at first, will certainly tend to the health and good temper of the community at large. Every one knows how fatiguing it is to stand for long periods of time. One is surprised, therefore, that a statute in this direction has not been made law before the present session. But that in many shops it will cause a good deal of expense and trouble we cannot doubt, as, taking shops as a whole, there is very little space at present for seats for assistants. It is equally certain that the spasmodic and also the moving character of shop assistants' work will render it by no means easy for seats to be largely used when they are provided. The ideal shop should be one with a broad space on either side of the counter, sufficiently large both for sitting and movement. There is no reason why a woman should not sit at the counter while the customer selects his or her wares—and this comfort can certainly be best obtained by movable seats which can be pushed when necessary under the counter. However, there can be little doubt that the new legislation will give opportunity for all sorts of ingenious devices for seating those who serve behind counters.

The Utility of Aluminium.

IN the *Comptes Rendus* attention is directed by H. Moissan to the improvement in purity which commercial aluminium has undergone during the last five or six years, and to the great influence of small quantities of impurities, such as iron and silicon, in increasing the rate of corrosion. He refers to the aluminium utensils employed during the Madagascar campaign, and quotes from officers' reports to show that the advantages of metal were appreciated. Owing to its lightness, and the fact that soldered joints are not necessary, M. Moissan considers that aluminium should largely replace other metals in military equipments, and mentions that some aluminium cooking utensils which have been used in his own house for three years have proved well suited for the purposes for which they were required, and still remain in perfect condition.

Longton and Fenton Urban Districts.

DR. FLETCHER'S Report to the Local Government Board on the serious and long-continued prevalence of diphtheria in the urban districts of Longton and Fenton (Staffordshire) is an exception to most of these reports in the fact that the disease is not traced to any special defects in the sanitation of the district. The Report notes, indeed, cases in which drain pipes had been allowed to be laid with clay joints, and that generally there was an absence of proper supervision over buildings in course of erection; but we do not find any such evidence of foul water supply, unemptied cesspools, &c., as we generally meet with in these reports. The cause of the origin of the disease is not traced, but its wide and continued prevalence is attributed to want of common care and prudence in the isolation of infected children in the schools.

Low Side Windows.

MR. P. MAINWARING JOHNSTON sends us an illustrated essay, reprinted from the Sussex Archæological Society's Collections, on the low side windows of Sussex churches, of which there are a good many. The windows are illustrated by sketches and plans. Referring at the commencement of his essay to the fact that the use and intention of these windows is still a vexed question, and no positive conclusion on the point has yet been established, the author suggests that "the surest way of settling the origin and purpose of the low side window is for those who have leisure and opportunity to collect and classify, county by county, all the existing examples"; and he has undertaken to do this for Sussex. We agree with him that the comparison of all existing examples is the best basis for a settlement, and it is to be hoped that with this object other archæologists will do the same for the examples in other counties. The explanation of this feature in mediæval churches is a matter of more general interest than some other archæological puzzles, for its solution would throw an important light on mediæval religious habits and beliefs, and on the relation of the church with the people. Mr. Johnston states his own theory, however; he is in favour of the theory that these windows were confessionals for all comers, and one may perhaps agree that this theory has the advantage of being applicable to a larger number of instances than any other. But there are some examples to which it is not applicable, or at least for which it is not sufficient; those, for instance, where the low side window is so placed as to afford a view of the altar through a hagioscope. Why this provision in relation to a confessional window?

Some Old Snuff-shops in London.

WE observe that the premises recently vacated by Messrs. Fribourg & Pontet, tobacconists and snuff-dealers, at No. 23, Haymarket, are about to be opened as a divan, consequently, we presume, upon the recent decease of Mr. Pontet. The firm of John Saullée & Pontet succeeded, *circa* 1765, James Fribourg as "French Manufacturers of Rappée Snuff" at the sign of the "Rasp and Crown" in Pall Mall, east end. Some years later Claude Pontet traded as a snuff-dealer at No. 3, Pall Mall, and during many years in the former half of the current century Frank Pontet traded at 24, Cockspur-street. Messrs. Fribourg & Pontet removed from No. 124, Pall Mall to No. 23, Haymarket in or about 1880. The shop of Messrs. Fribourg & Treyer, at No. 34, Haymarket is distinguished by its original bowed-front, one of the oldest of its kind in London. The shop in Coventry-street (No. 21), by the sign of the "Highlander, Thistle, and Crown," opened by David Wishart on December 31, 1720—the very day on which Prince Charles Edward was born—is believed to be the first whereat a figure of a Highlander was placed. The figures have now become rare; there is one in the Tottenham Court-road, and a very fine example in Bridge-street, Westminster. Wishart's shop—a favourite resort of the Jacobites—survived until its removal in 1881 for a widening, on the south side, of Coventry-street, when the business was transferred to new premises in the Haymarket, west side.

St. Louis Architectural Club.

THE illustrated Catalogue of the Exhibition of the St. Louis Architectural Club, held in the spring of this year, is a good example of the beautiful manner in which catalogues of this kind are got up by architectural societies in the United States. It contains a number of illustrations, which may be classified as consisting of designs of orthodox classic type; dwelling houses of an architecture owing something of its inspiration to Richardson; two or three modern Gothic churches (which are poor enough—the Americans have never grasped the true feeling of Gothic); tall buildings of the usual American type; and purely ideal or Academic designs, mostly competition designs by students. There is nothing different to what we have already become familiar with in illustrations of modern American architecture, but the general standard of design is high. Among the designs specially worth mention are the elevation of Messrs. M'Kim, Mead, & White's admirable Boston Library; a good design for a leaded glass medallion with a profile head in the centre, by Mr. R. S. Chase; Messrs. Eames & Young's agreeably grouped classic building for the Arts pavilion of the Omaha Exhibition; a graceful design for an "Entrance to a Park," by Mr. Emil Friemann; a fine conception for a "monumental stairway" in a palace garden (breathing the spirit of the Ecole de Beaux-Arts), by Mr. H. Brooks Price; and two designs for a ball-room, section and end elevation, by Mr. A. T. Farrell and Mr. F. Eurich, both students of Cornell University; these two designs also have a very French flavour. Half the volume is occupied by advertisers, "without whose co-operation, we are told, "the publication of this cata-

logue would have been impossible;" but it is added that "an endeavour has been made to present their cards in an attractive manner, believing that good printing, like good architecture, has a value beyond the mere cost of the labour and material that enter into its composition." This promise is quite carried out, and the advertisement portion is not out of keeping with the style of the rest of the book; but we presume that to attain this end the advertisers have been willing to allow the form of their advertisements to be manipulated by the editors—a concession which, we imagine, is not often made on either side of the Atlantic.

Pennsylvania University Year-Book.

THE Year-Book of the Architectural School of the University of Pennsylvania may be grouped with the catalogue mentioned in the preceding note, and is illustrated in the same style; but as it consists entirely of imaginary designs made as studies, it is of course much more academical. Here French influence is paramount, not only in the design but in the very manner of execution of the drawings. It is to be regretted that centres of architectural education in America do not aim more at founding a school of architecture of their own. The "one-day sketches" on given problems are a good idea, and some of those illustrated show a good use of the twelve hours allowed, though they present no novel suggestions, unless we except "An Architectural Illustration for the Outlet of a Mountain Stream"; and here the novelty is rather in the subject than in the treatment, which is the cascade of an Italian garden. Whether this pompous and very artificial treatment is the most suitable in idea and association for the outlet of a mountain stream seems rather questionable.

Mr. Homer Watson's Pictures.

AT Messrs. Dowdeswell's Galleries there is a small collection of landscapes by a Canadian artist which are of more than ordinary merit. Mr. Watson paints chiefly forest scenes, or scenes in which trees are predominant objects, in a very broad and powerful style, which has some affinity with that of Diaz, and suggests at any rate a study of that remarkable French painter. Among the finest works in the collection are "A Stone Bridge in a Forest" (8), with a current of brown water running beneath the trees, and the stone bridge showing white in the middle distance; "The Mill Ford" (28) also a very fine work of somewhat the same character as the last-named; "A Water-course—Dry Season" (19); "Trees on the Grand River Ontario" (4); and "Among the Scrub Oaks—Gathering Storm" (15). The painter's range of colour is limited, as is noticeable in the rather conventional treatment of the grass in "Crossing the River" (17), but his style is fine and serious. The only exceptions are the two small sea-pieces, which are bad, and seem to indicate that the author had better keep to his forest scenes.

PLYMOUTH AND STONEHOUSE BETHEL.—On the 14th inst. the foundation-stone was laid of a new wing which is to be added to the Plymouth Bethel. Messrs. H. J. Snell and M. A. Bazley are the joint architects. The building will consist of four stories of brick and Portland stone, and the total height will be about 56 ft. There will be three class-rooms and a reading-room, and the entrance will be from the quay.

THE ARCHITECTURAL ASSOCIATION:

FOURTH SUMMER VISIT.

THIS visit took place on Saturday, the 15th inst., when a party of about thirty, to which the number had to be limited, went down to Graeme's Dyke, near Pinner, the residence of Mr. W. S. Gilbert.

The house was built in the early "seventies" for Mr. Frederick Goodall, from the designs of Mr. Norman Shaw. It has since been added to under the care of the late Mr. Arthur Causton, and a fine alabaster mantelpiece, from the design of Messrs. George & Peto, has been placed in the drawing-room.

The building is of red brick, with stone mullioned windows below, and of timber and plaster in the gables. Its exterior appearance is of a picturesque and rather irregular order, though the whole effect, with its gables and tall clustered chimneys, is not lacking in repose. The main garden front faces a little east of south, and the axis of the drawing-room, formerly Mr. Goodall's studio, is not quite at right angles to the main axis of the house, in order to obtain a direct north light. This irregularity, brought about for a good and sufficient reason, results in a grouping of parts which is by no means unpleasing.

Over the front entrance is a very large half-timbered gable with a finely carved barge-board, and the design of the whole of this portion is very satisfactory in proportion.

The hall is entered by a low Gothic-headed door, which is placed within a deep and roomy porch. From the hall the dining-room, library, and boudoir are reached, and the studio, now the drawing-room, is gained by a short flight of steps and a corridor, the latter lighted by large windows with seats in them.

The drawing-room is a large room about 40 ft. by 25 ft., and has a rising timbered ceiling. At the south end is a little gallery high up, presumably constructed for the painter's use in gaining a distant view of his canvases. There is a window at the south end beneath this, and two very large ones at the north, also a bay looking west. The whole design of the room is evidence that a painter's studio need not necessarily be the ugly affair it too often is, and is even expected to be.

The new mantelpiece is of a Renaissance type of design, the heavy upper portion carved in part in low-relief and supported by satyr caryatides below. The material is alabaster, and is slightly polished, but owing to its translucent nature the carving and designs upon it are rather thrown away. The workmanship is very good.

The portion of the house built by Mr. Causton contains a fine billiard-room on the ground-floor. This is not lighted adequately for play by daylight, a condition which, perhaps, was not asked for. In this room are various interesting mementos of Mr. Gilbert's much appreciated dramatic work.

The dining-room presents its longer side to the south and this is almost entirely occupied with an eight-light mullioned window. The upper lights only are glazed in leaded patterns, while the lowest range is filled with single sheets of glass. The hall is lined with oak matched and V-jointed boarding, stained or fumigated a dark colour. The effect is not very prominent, as there are so many objects of interest on and around the walls. A very large model of an old wooden man-of-war stands before the hall window, and there are other interesting reminiscences of Mr. Gilbert's work. A fine portrait of the owner hangs in the drawing-room.

The gardens, which are extremely beautiful, were also inspected and very much enjoyed. Surrounding the house are, on the south side, an Italian garden enclosed with a low hedge of golden yew, from which rise at intervals a series of Irish yews. The beds are filled with "bedding" plants and are cut out in the grass. On the west is a tennis lawn, and below this, and surrounded by terrace walls, a bowling-green or croquet lawn.

In addition to these there are wild parts with many beauties; also a delightful rose walk with standard roses and tall larkspurs of many shades of blue on either side; also a host of beautiful herbaceous plants by the kitchen-garden paths.

Mr. Gilbert had very kindly provided tea and light refreshments for the party, who very much enjoyed the visit and the hospitality of their host.

THE TOWN HALL, LIVERPOOL.

A VISIT was paid by the Liverpool Architectural Society to the Town Hall on Friday last week, to see the recent alterations and decorations. The building has undergone many changes since it was originally built as the Exchange from the designs of John Wood, of Bath, in 1749-54. It consisted then of practically only an upper story, the greater part of the ground floor being open arcading. It was here that the merchants met to transact business; there being six "walks," as they were called, namely, the Irish, West Indian, Coasting, Baltic, Virginian, and Mediterranean. In 1787 the north wing was added, containing the ball-room and what is now used as the Council Chamber. In 1795 a fire gutted the interior, and also destroyed a very ugly dome, which was over the central portion of the South, or Castle-street, front. About 1802 the grand staircase was built in what had formerly been a central open court, and over this was erected the dome, standing on a lofty drum, which still exists. The height from floor to apex of dome internally is 106 ft. The north wing and dome, &c., were, according to Sir James Picton, designed by James Wyatt, "of execrable memory." The whole of the interior was undoubtedly remodelled by him, as the drawings signed by him still exist, and the date of this work is also certain, as each drawing is endorsed, "Exhibited to and approved by the Committee, October 25, 1805." The exterior, the fire notwithstanding, remains pretty much the same as in Wood's original design, except that the north wing is slightly different in character, and that in 1811 a portico, with arcade under, was added to the south front.

Internally the suite of rooms on the first floor is probably one of the finest to be found in any Municipal building. There are three reception rooms on the south side, a small ball-room on the east, the large ball-room, a fine room 41 ft. by 41 ft. by 89 ft., on the north, a pretty top-lighted tea-room behind it, and the dining-room on the west side. These, together with the entrance-hall on the ground floor, and the grand staircase and dome, have been redecorated from the designs, and under the superintendence of, Professor Simpson, of University College, Liverpool. The entrance-hall has been panelled in oak framing in four brass panels (which were formerly together in one heavy bronze frame), on which are inscribed the names of those upon whom the honorary freedom of the city has been conferred. The finger-plates and door-handles for the entrance hall were designed and executed by Mr. R. Ll. B. Rathbone. The dome and drum of the dome are in blue, white, and gold; the four pictures which are to be painted in the pendentives by Mr. Charles W. Furse, and which are to be representative of the trade of Liverpool, are not yet finished. The rooms on the first floor are treated principally in blue, green, white, and gold, except the ballroom, which is a pinky red and yellow, to harmonise with the existing yellow scagliola pilasters. This room also has a new high dado in mahogany and satinwood. In the dining-room three large new panelled mirrors have been placed which have squares of coloured enamels, by Mr. Robert Hilton, introduced as jewels. All the decorations were carried out by Messrs. Warings & Gillow.

In addition to the redecorations some structural alterations have been carried out from the designs of Mr. Shelmerdine, the City Surveyor. Three of the cellars have been converted into smoking rooms, lavatories, &c., and the passages have new mahogany doors and dado. Some important alterations are also now being carried out in the Council Chamber, under Mr. Shelmerdine, in order to render that room more suitable for meetings.

ELECTRIC LIGHTING AT WORTHING.—On the 12th inst., at the Municipal Offices, Liverpool-road, Worthing, Mr. G. W. Willocks, one of the Local Government Board Inspectors, conducted an inquiry with reference to an application by the Worthing Town Council to borrow 36,900*l.* for the purpose of introducing a scheme of electric lighting into the town. Mr. E. W. Monkhouse (of the firm of Messrs. Burstall & Monkhouse, electrical engineers engaged by the Corporation), Mr. F. Roberts (Borough Surveyor), and others, were present. The Town Clerk furnished a statistical statement, showing the area of the borough to be 1,406 acres; estimated population, 21,000; assessable value, 105,929*l.*; and outstanding loans, 156,807*l.*, less 9,350*l.* in sinking fund. At this point of the proceedings, several of the ratepayers present signified their intention of opposing the application.

Fig. 1.

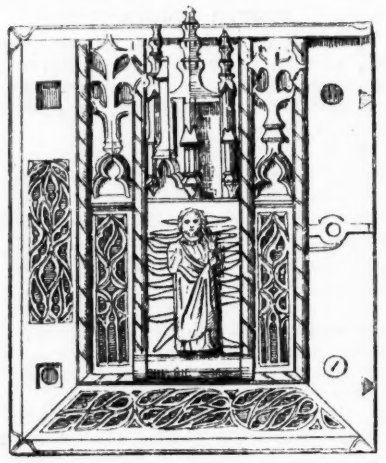
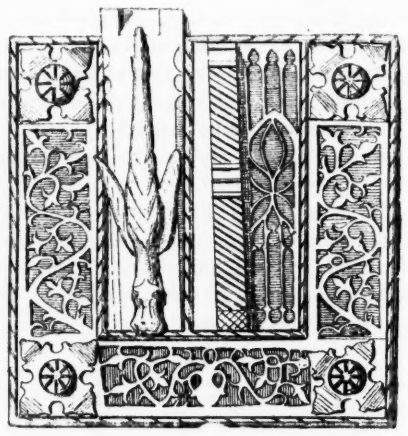


Fig. 2.



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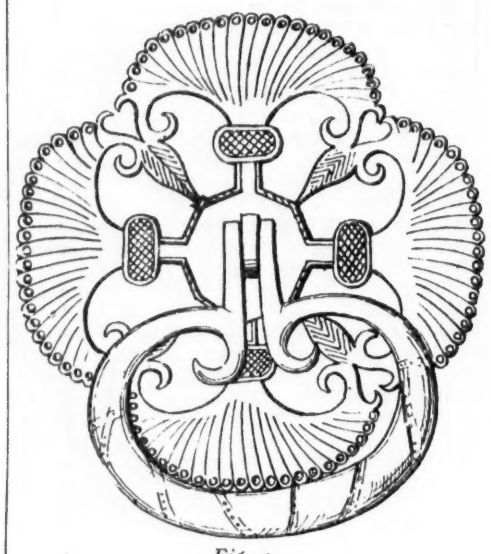


Fig. 4.

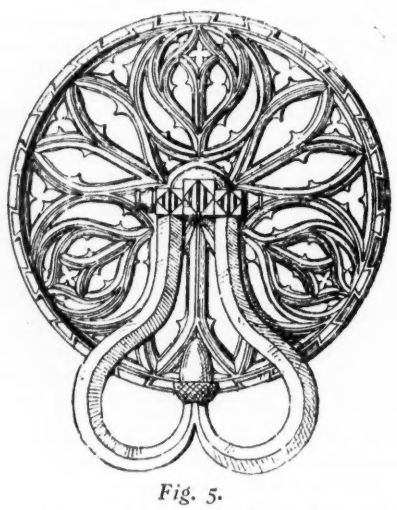


Fig. 5.

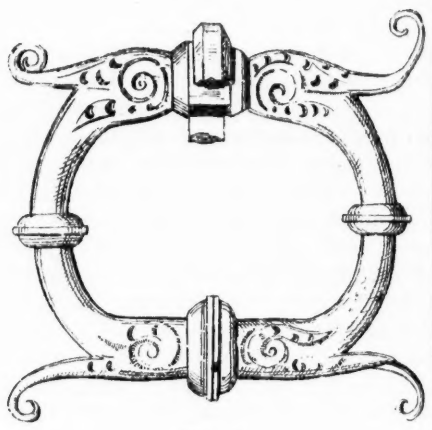


Fig. 6.

Ornamental Metal-work in the Dublin Museum.

ORNAMENTAL METAL-WORK:

SKETCHES IN THE DUBLIN MUSEUM.

THESE sketches are some that were left by the late Mr. D. Alleyne Walter, some of whose illustrations of wrought ironwork in the Dublin Museum were published in the *Builder* for March 5 of last year. The following are his notes on them :—

Fig. 1. This elegant piece of work, described as a "Bell Bracket," is referred to on the label as of the seventeenth century, and from Nuremburg. The bell is hung in a rectangular frame of flat bar iron, and is surrounded by graceful foliage. The main curves of the foliage are of round iron, intersecting in a similar manner to those of the "Grave Cross" previously given, and which is also of the same date.

The most noticeable feature in this "bracket," apart from the foliage which surrounds it, is the singular curved and twisted projection from the front, which terminates in a finial composed of eight pairs of curls issuing from an elongated conical centre of twined ironwork.

This finial, when seen in perspective, presents a very curious and complicated appearance from the intermingling of the curves. The bell was rung from the projecting lever, as seen in the illustration, and was probably used for conventual or domestic purposes. The height of the whole bracket is 2 ft. 0¾ in., and the width 1 ft. 9½ in. The bell is 6½ in. diameter.

Fig. 2. A lock front of the fifteenth century "Peyre Collection." A curious specimen, partly of cast work. The rim of the front is simply chamfered with a plain ornament at the corners, and the whole is divided into five compartments. The central division is occupied by a standing figure in low relief of Our Lord in the act of benediction, and surrounded by an aureole of rays. Above the figure is a projecting canopy with buttresses, crockets, and finials, while on either side are smaller canopies above panels of flamboyant tracery. One of the sides and the bottom retain these panels. The central portion is divided into three by twisted columns. This lock front has portions of a red cloth still remaining beneath the traceried panels. It may probably have belonged to an Aumbry or Armoire.

Fig. 3. An example of a bolt front from the same collection as the preceding, and also of the fifteenth century. It is of square form, with a roped ornament running round the top, bottom, and sides ; and on these three sides forming a border. which has a flowing foliage pattern, and a bold square flower at the corners. The bolt, which occupies the right side of the central compartment, is plainly chamfered, and is surmounted by a recumbent nondescript animal with long hooked tail, broad blunt head, and wings. The left side has a broad projecting buttress of two stages, with incised lines on the face, and window-like panel of flamboyant character of three lights. It is of French character, and may have belonged to a coffer.

Fig. 4. This is described as being of wrought iron, German, and of the seventeenth century.

The escutcheon of this door handle is of good design, and the effect of the whole is greatly enhanced by the punchings of the cross-like terminations, and the incised lines which give them a shell-like appearance, also by the hatching of various other parts. The handle is large and bold, and also enriched with encircling bands of lines. The diameter is 5 in.

Fig. 5. A very beautiful and characteristic door handle of wrought iron with its escutcheon of open flamboyant tracery. The handle terminates interiorly with an acorn, and the dovetail ornament surrounding the rim is peculiar.

Fig. 6. Another door handle described as being of wrought iron (but is apparently of bronze), German, and of seventeenth century. The design is bold and good, but the ornament is rude, though effectively used. The diameter is 7¼ in.

THE ARCHITECTURAL ASSOCIATION ANNUAL EXCURSION.

THE usual excursion of the Architectural Association (the thirtieth of the series) will take place this year to Salisbury and its neighbourhood, the cathedral city forming the headquarters. The following remarks on the district selected are reprinted from *Architectural Association Notes* for this month :—

"Salisbury lies at the junction of a number of streams that afterwards form the main body of the Avon. The streams lay in deep valleys, some as much as 400 ft. below the crest of the Plain ; these valleys are full of interesting things, while the Plain abounds with tumuli and barrows.

The Chilmark stone is quarried in the Plain, and the facility of working it has influenced the character of the local architecture very considerably. The interesting little market town of Tisbury will be visited, which is almost wholly built of stone. The church is an imposing structure, cruciform in plan, and it has some interesting roofs. Hard by is Place House, now a farm, but once a grange of Shaftesbury Abbey. It has two gate houses and an enormous barn, with transeptal waggon porches. This is one of the finest barns to be seen in England. Wardour is about three miles from Tisbury, and is a lovely park, having two castles within it—one comparatively modern, *i.e.*, about 1770, and a ruined one, which is a mixture of Decorated and Jacobean work. There is a very fine chapel in the later castle as big as a City church. This was added to by Soane.

Mere, the Wiltshire Mere, not to be confounded with the Somersetshire Meare, is a little market town dominated by an extraordinary Castle Hill ; here there is a splendid church and beautiful old inn with a wrought-iron sign stretching across the road. A few minutes away is Woodlands Farm, which is a fourteenth and fifteenth century building, having its chapel and some very fine Jacobean

fireplaces. In the neighbourhood Mr. Ernest George has built Motcombe Park for Lord Stalbridge. Shaftesbury is a drive from here; there is nothing in the place to equal the interest of its position, which occupies the spur of a range of hills and overlooks the Plain below towards the west. The site is an instance of the skill with which the Romans placed their towns.

Going north from Salisbury we pass the site of Old Sarum, at the foot of which nestles the village of Stratford-sub-Castle, with a small but interesting church and Jacobean house, now the Vicarage. A few miles farther up the river valley is the well-known Lake House, the home of a former brilliant Architectural Association student, Mr. Medlycote Duke, whose premature death occurred some years ago; recently restored by an Architectural Association travelling student, Mr. Detmar Jellings Blow. Amesbury has two interesting garden houses, now used as lodges, date about 1600, Stonehenge and the Roman Camp being close by.

In the valley of the Nadder lies the town of Wilton, the home of the Wilton carpet manufacture, having a fine modern Italian church by Thomas Henry Wyatt, which will repay careful consideration in these erotic* days. The ruins of the old church are in the market-place. Wilton House, the seat of the Earl of Pembroke, with its glorious gardens and Palladian bridge, its pictures and statuary, its decorations of the white and gold period, the fronts by Inigo Jones models of careful and beautiful design, and the park entrance and gates all need no description here.

Winchester lies sufficiently near to be visited, though it cannot be said to be in the Salisbury district. One does not know what to say about the place in a few lines, as a book might be filled up with it. The cathedral, with its Norman work in process of transposition into Perpendicular, the wonderful Decorated stall canopies, the College, St. Cross, and the town itself, and a modern triumph of art in Mr. Gilbert's Jubilee statue of the Queen, are all valuable to the student.

The little market town of Downton has a very interesting church and a Queen Anne house. Driving back to Salisbury, Nunton is passed, with its yew avenue leading up to the church, and later on St. Matthew's Grange, A. W. N. Pugin's original house. Longford Castle is on this road, formal gardens surrounding the extraordinary house of triangular design by John Thorpe. This is a set piece which fitly concludes the week and should frame its recollections. The whole of the country is so very pleasant and beautiful that, if the weather is good, the excursion cannot fall below former experiences."

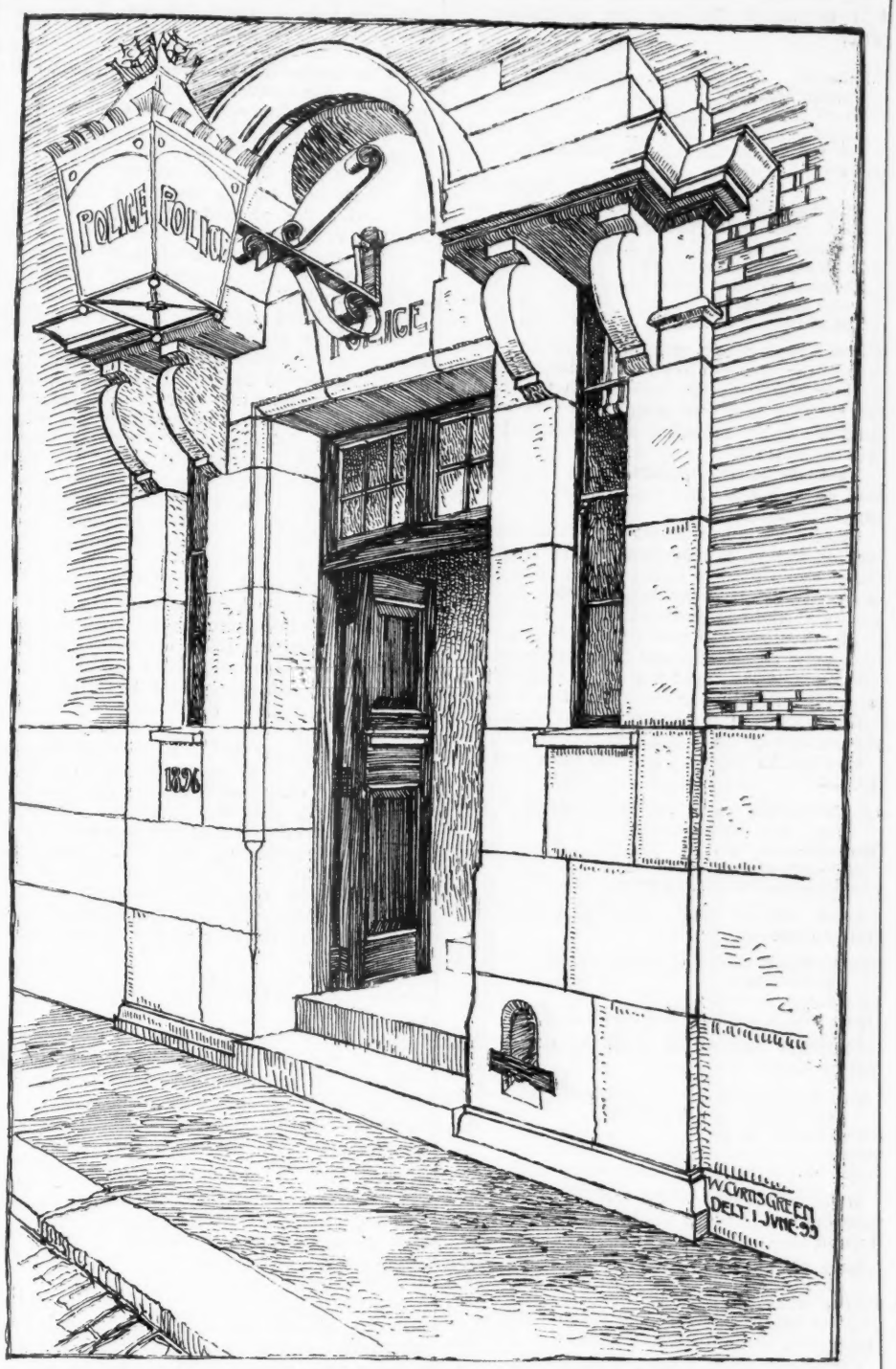
We have received the following additional particulars in regard to the excursion:—The excursion will be held from July 31 to August 5. Amongst the many places to be visited the following interesting subjects are included:—Tisbury Church and houses; Wardour Castle and park; Mere Church, houses, &c.; Woodlands farm; Shaftesbury; Lake House; Wilton; Blandford and district; Cranbourne, and Longford Castle.

COMPETITIONS.

BRADFORD MARKET EXTENSIONS. — The Bradford Corporation Markets and Fairs Committee selected, on the 17th inst., designs for the new market extensions in Rawson-square and Northgate. The Committee awarded the first premium (100*l.*) to Mr. T. C. Hope, architect, Kirkgate, Bradford, and the second premium (50*l.*) to Messrs. Mawson & Hudson, architects, Exchange-buildings, Bradford.

PRIMITIVE METHODIST CHAPEL, WATH, YORKSHIRE.—The foundation stones were laid recently of a new Primitive Methodist Chapel at Wath-upon-Dearne. The new building will face Barnsley-road, and have a frontage of 28 ft. It is to accommodate 300 persons, and will consist of nave, side aisles, orchestra in the form of an apse, vestry, and usual offices. The building is to be erected of Brighouse stone, pitch faced, and the woodwork will be of pitch pine. The cost is estimated at 1,240*l.* Mr. W. G. Smithson, of Leeds, is the architect; and the principal contractors are Mr. C. Broadbent, of Wombwell, and Mr. N. Mell, Hoyland.

* So in the Architectural Association publication. Is it a misprint? If not, why are these days "erotic," and in what sense is T. H. Wyatt's architecture a corrective to so amentable a tendency?—ED.



Sketches of London Street Architecture.—XXXIII. Entrance to the Police Station in Theobalds-road.

LONDON STREET ARCHITECTURE.—No. XXXIII.

THE doorway shown in the sketch is the principal entrance to the Police-station in Theobalds-road, the design for which was made in the office of the surveyor to the Metropolitan Police.

Several police stations have latterly been built from the designs of the Surveyor, and this special one is a favourable example. The building is in red brick with stone dressings and a deep plinth of Aberdeen granite, which is also used at the entrance doors.

BOYS' SCHOOL, WORCESTER.—A new boys' school has been erected at a cost of about 1,300*l.* in the parish of St. Barnabas. The new school-room is built close to the old ones. The work has been carried out by Messrs. J. Wood & Sons, of Worcester, according to plans prepared by, and under the supervision of, Messrs. Henry Rowe & Sons, architects. The main school-room is 45 ft. by 22 ft., and has accommodation for ninety-six boys. There are two class-rooms, 22 ft. by 15 ft., giving accommodation for thirty-two boys. Access to these class-rooms can be obtained from the school ground as well as from the school-room. At the opposite end to the class-rooms is a cap-room and lavatory, approached from the entrance vestibule. The new rooms are heated by hot-water circulation by Messrs. Ward & Son.

FUEL AND SMOKE.

THIS was the subject of the opening address of the President (Mr. G. Beilby) of the Society of Chemical Industry, which held its annual meeting at Newcastle on July 12. The following is a *résumé* of the address, which summarises statistics and suggestions of considerable practical importance:—

The rapid exhaustion of the British coalfields and the serious increase of smoke pollution make it desirable that the questions of fuel and smoke should be treated simultaneously. Our stores of fuel are being recklessly burned up, while the atmosphere, not only of the large cities, but also of the manufacturing districts outside of these, is being increasingly polluted. To place these questions in their true scale and proportion it is desirable to allocate the total coal consumption of this country under various heads according to the purposes for which the coal is consumed.

The total coal consumed in the United Kingdom in 1898 was 157 million tons of which

76 million tons were consumed for the production of power for industrial purposes;
46 million for the production of heat for industrial purposes;
35 million for the production of heat for domestic purposes.

Taking the first two items more in detail

it is estimated that for the production of *power*—

	Million tons.
Railways.....consume	10 to 12
Coasting steamers..... „	6 to 8
Mines ..... „	10 to 11
Factories ..... „	38 to 40

For the production of *heat* for industrial purposes—

	Million tons.
Blast furnaces .....consume	16 to 18
Steel and malleable iron works ..... „	10 to 12
Other metallurgical works ... „	1 to 2
Chemical works, potteries, and glass works..... „	4 to 6
Gas works ..... „	13 to

These figures give a general idea of the magnitude of the problem to be dealt with, and form a sound starting point from which to consider the various remedies which have been suggested. These remedies are broadly divided into two classes.

First—Improved appliances for the combustion of raw coal, and distribution of the air supply in furnaces.

Second—The transformation of the raw coal into smokeless fuel by preliminary treatment, either by destructive distillation in gas retorts or in coke ovens, or by its conversion into fuel gas by partial combustion in air and steam.

The distillation of coal in retorts, blast furnaces, and coke ovens was described generally. The amount of each of the crude products obtained from each source was given as below :—

Products from the distillation of coal as at present carried on in the United Kingdom.

Gas works distil 13 million tons, and produce—

130,000 million cubic feet of illuminating gas at 650 B.T.U. per cubic foot;
650,000 tons of tar;
129,500 tons of sulphate of ammonia;
7 to 8 million tons of soft coke.

Blast furnaces distil 2 million tons of coal, and produce—

360,000 million cubic feet of fuel gas at 130 B.T.U per cubic foot;
150,000 tons of tar;
18,000 tons of sulphate of ammonia.

Recovery coke ovens distil 1¼ million tons, and produce—

12,500 million cubic feet of illuminating or fuel gas at 600 B.T.U. per cubic foot;
62,000 tons of tar;
900,000 tons of hard coke;
11,000 tons of sulphate of ammonia.

If beehive ovens were entirely replaced by recovery ovens, there would be a further production of—

125,000 million cubic feet of illuminating or fuel gas;
620,000 tons of tar;
9 million tons of hard coke;
110,000 tons of sulphate of ammonia.

Collecting these figures together, we have from—

	Tar.	Sulphate of Ammonia.
Gas works	650,000 tons.	130,000 tons.
Shale oil works ...	—	37,000 „
Blast furnaces.....	150,000 „	18,000 „
Recovery ovens ...	62,000 „	11,000 „
Present totals ...	862,000 „	196,000 „
After extension of recovery ovens...	620,000 „	110,000 „
Probable totals...	1,482,000 „	296,000 „

The effects of the natural development of these industries on the markets for by-products were next considered. It was pointed out that, if any considerable part of the 137,000,000 tons of coal which is at present burned in the raw condition were to be converted into gas—two, coke and ammonia—an altogether new condition of things would arise which would need to be foreseen and provided for. A careful study of the whole subject has led to the conclusion that the natural outlet for the coke and pitch would be found in the manufacture of fuel briquettes, and the President advocated the turning of the very best technical skill to the perfecting of this manufacture. He believed that, with skill and enterprise, it would be possible to make briquettes exactly suited for every purpose from boiler firing to domestic cooking.

The leading types of producer for the making of fuel gas were described, from the original "Siemen's" to the most recent "Mond" producer.

Coming to the application of the various remedies, it was pointed out that it was now recognised by engineers that steam boilers could be economically and smokelessly fired either by careful hand stoking or by the modern forms of mechanical stoker. In support of this statement, the report of the Committee on Smoke Preventing Appliances, 1895, was quoted from as follows :—"Finally, the committee are of opinion that, whilst future experiments and inventions may be the means of introducing new and better methods of treatment in the combustion of fuel, enough is known at present to enable steam users to work their boilers with a fair degree of economy and practically without smoke."

It was pointed out, if the boilers at present in use, which are badly designed and built, were gradually weeded out and replaced by properly designed and built boilers, the burning the 57,000,000 tons of raw coal used for steam raising would be accomplished practically smokelessly. Where small power installations were required, it would be better and more economical to replace steam by gas or electric motors. For railways and coasting steamers, an ample supply of smokeless briquettes could be procured by the extension of the coal distillation industries.

For metallurgical and chemical works of all kinds fuel gas is, in the majority of cases, the most suitable fuel, being smokeless and easily controllable. But he thought it unlikely that the average manufacturer would care to add to his capital expenditure as well as to his anxieties by erecting the comparatively costly plant which is necessary for the satisfactory gasification of raw coal. He thought the time was not far distant when centres for the production and distribution of fuel gas would be established in industrial districts. There was nothing to prevent the economical distribution of fuel gas to works within a mile or two of the producing station. If this were accomplished, the conditions of life in industrial localities would be enormously improved, and in time the smoke blots on the face of the country would be wiped out.

Coming to the 35 million tons of raw coal which is burned for domestic purposes, a good deal of attention was given to the present position of domestic gas firing and its relation to heating and ventilation. The desiderata appeared to be warmth, comfort, and ventilation equal to what is obtainable by the use of an open coal fire and at a cost not more than twice as great. It was pointed out that the gas fire itself had been brought up to a high standard of excellence, but that it generally suffered in efficiency owing to the unsuitability of its setting and surroundings. In this matter the co-operation of the architect and builder with the gas engineer is required, so that house chimneys and flues may be adapted for gas firing.

For domestic heating the fuel briquette, if properly adapted for that particular purpose, might play an important part in the displacement of raw coal and smoky combustion.

Having thus far shown the magnitude of the fuel and smoke questions in the various departments of industry, and also the various remedies which technical skill has placed at our disposal, the President concluded by inquiring briefly into the reasons why these remedies were being so slowly adopted. He suggested that the self-interest of the manufacturer, as well as his public spirit, needs to be aroused. He advocated the application of gentle but uniform pressure for the adoption of smokeless methods on consumers of raw coal by a central authority acting under the Government, and instanced the gradual but steady improvement in the character of the emanations from chemical works which had resulted from the judicious administration of the Alkali Acts during the past thirty years.

As a means of bringing all of the different interests which are concerned in this matter into line, it was suggested that the society might arrange for the holding of a conference on the subject of fuel and smoke, at which the leading technical societies, as well as the actual industries concerned, should be fully represented.

PUBLIC LIBRARY, DUBLIN.—A new public library is being erected at the corner of Dunne-street and Charleville-mall, Dublin. In addition to the large reading-room, which is 50 ft. long and 28 ft. wide, a lending department, a separate reading-room for ladies, and a reference-room have been provided. The works are being carried out by Messrs. J. Pemberton & Son, from the designs and under the supervision of Mr. C. J. MacCarthy, the City Architect.

ENGINEERING SOCIETIES.

SOCIETY OF ENGINEERS.—A visit was made by the Society of Engineers, on Tuesday, the 18th inst., to the Folkestone Pier Extension Works and the Dover Colliery Works. The Folkestone Pier Extension Works comprise the extension, widening, and strengthening of the existing pier. They are being carried out from the design and under the control of Messrs. Coode, Son, & Matthews, Mr. William Rigby being the contractor for the work, Mr. H. T. Ker the resident engineer, and Mr. J. Grice the contractor's agent. The existing pier is being extended for a length of 900 ft., 300 ft. of this being in continuation of the line of the present work, and 600 ft. canted at an angle of 36 deg., so as to form a sheltering arm. The extension of the pier is composed throughout of Portland cement concrete blocks, weighing on an average 17 tons, the heaviest blocks used being 20 tons. The work is built from a staging, covering the width of the pier, in two spans of 53 ft. The centres of the spans longitudinally are 40 ft. apart. When the work covered by the innermost bay has been completed, and the girders are available, the staging is taken down and re-erected at the outer end. Piles, 18 in. square, in clusters of four and six, are driven to form dolphins, this being accomplished by steam winches from cantilever pile engines. When the dolphins have been completed, the lattice girders, which have been removed from the inner end, are floated out on a barge, and lifted by the piling winch into position. The road on top of the girders is then laid, and the pile engines are ready to be run out for the next bay. The mode of procedure adopted for preparing the foundation is as follows: The sand, shingle, and soft material are removed by 1¾ cubic yard grabs, worked from the 30-ton travellers. After the soft material has been removed, the bells are lowered, with four men in each, to excavate the hard stratum and to level it so that the foundation blocks may be set on a perfectly level and even bed. The diving-bells are 12 ft. 9 in. by 10 ft. 6 in. by 6 ft. 6 in., and weigh 26 tons. When the beds have been prepared, 20-ton travellers are brought forward to set the foundation blocks, after which the bells resume work. The work is brought up in lengths of about 60 ft. at a time. The blocks in the under water portion of the work are laid block on block, without mortar joints, and the face blocks are joggled together, and to the next blocks in from the face, by round concrete joggles, which are deposited in bags by divers. Above low-water mark the outer blocks are faced with granite blockers, and the blocks are bedded in mortar and the joints grouted. The blocks for the pier are made in a yard conveniently situated. The concrete is made by two of Messent's mixers, each of one cubic yard capacity. It falls from the mixer into a hopper, from which it drops as required into Decauville waggons, which run on staging fixed at a height sufficient to allow the waggons to tip freely over the top of the block moulds. The moulds are struck three days after a block has been made, and the block, when six days old, is lifted by the yard traveller and stacked. The blocks remain in the stacking ground for four weeks, and are not set in the work until they are five weeks old.

ARCHÆOLOGICAL SOCIETIES.

NOTTS AND LINCOLN ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.—The annual assembly of the Architectural and Archæological Society of the counties of Lincoln and Nottingham is this year held at Gainsborough. It is thirty years since the Society met at Gainsborough. On the first day (Wednesday, the 5th inst.), the route lay solely in Lincolnshire, the visit to Nottinghamshire being reserved for the following day. The churches to which chief attention was paid were those at Blyton, Laughton, Scotter, Scotton, Northorpe, Kirton, Grayingham, Blyborough, and Corringham. The first stoppage was at Blyton Church, dedicated to St. Martin. The existing church includes the remains of a Norman building, the main portion of the fabric dating back to the thirteenth century. The lower part of the tower is late Norman, and the plain arch into the nave suggests the middle of the twelfth century. With these exceptions the whole of the Norman church is cleared away and rebuilt with subsequent additions and enlargements. The greater part of the tracery in the east

window is modern, but sufficient of the old work remained to reproduce the whole original design. The rood beam above the chancel arch was set up during the Perpendicular period, and on the upper side of the beam the wall is considerably recessed, which was, no doubt, to allow of a boarded and painted background to the rood, and containing figures. An incised tombstone on the floor near the font, and a small brass in the south wall of the chancel are in memory of William and Elizabeth, son and daughter of Sir John Wray, and Griselda his wife, who died 1613 and 1615. At Laughton Church, dedicated to All Saints', a wonderful transformation has taken place since the last visit of the Society, when the building was not only utterly dilapidated, but it was also suffering from a bad restoration early in the present century. An Early Decorated window, brought from elsewhere, had been set up in the east wall, and is altogether out of proportion, as it came down very near the floor. The oldest part of the building is the northern arcade. A small window at the east end of the south aisle received considerable attention, for it had been restored from fragments found built up in the wall. The tracery and mullions had been cut out of a flat piece of stone. The church contains a piscina. Against the east end is the Dallison monument. Thanks to the late restoration by Mr. Bodley, the church is now a model. From Laughton the party went forward to Scotter and Scotton, the former containing portions of Saxon and early Norman work; the remains of a chantry chapel, staircase to the rood-loft, &c. In the floor of the chancel an old altar slab is used as a tombstone. Traces of an east window, much larger than the present one, are still to be found. At Scotton Church some good examples of Early English work caused much interest. Northorpe Church, a short drive from Scotton, is dedicated to St. John the Baptist. It is smaller than many others in the neighbourhood, and is fallen into sad disrepair. The chancel windows are excellent examples of Early English. The nave has three Norman arches on each side. These, supported on short cylindrical pillars, were regarded as a unique example. The south doorway, too, is the most remarkable example of the fourteenth century work in the district, consisting of a well-moulded arch with flowers carved at intervals, deeply undercut, and wonderfully well preserved. In this doorway is still to be seen the original oak door, ornamented with carved tracery of graceful flowing design. In front of the altar is an old altar slab with the five crosses cut on it. It has been appropriated as a tombstone for Anthony Morrison, who died in 1668. The church was in a deplorably dirty condition, and ivy had found its way through the roof, and hung in festoons. The opinion was expressed that one of the grandest monuments of English church history in the locality was being allowed to fall into decay and absolute ruin. Kirton Lindsey Church afforded examples of every style of ecclesiastical architecture from the twelfth to the fifteenth century. The original church, of which only the priest's door remains, seems to have been entirely pulled down to make way for the present structure. The priest's door consists of a Norman arch with zigzag ornament. Resting on the jambs is a curious tympanum, a portion of a much earlier work covered with an interlacing pattern carved in low relief, and not later in period than the time of Edward the Confessor. The tower is without doubt the most interesting feature in the church. The mutilated effigy of a knight of the time of Edward I. or II. is all that remains of any monuments there may have been. Grayingham was the next church to be visited. Fortunately, the old tower of the church has been preserved, and, judging from its dimensions, the original building must have been on a considerable scale. The church fell down in 1771, and the patron refused to rebuild it. The work was accordingly done by the parishioners at a cost of 200*l.*, and when they had finished, the patron, Sir Thorold, paid the cost. The church at Blyborough was stated to be a modern restoration, some few remains of Early English having been incorporated with the newer work. Corringham Church is another example of restoration happily executed. The church has been sumptuously furnished and decorated. The building affords examples of all the various styles of church architecture. The tower is the oldest portion and is Saxon. The west window in the tower is a single lancet, and the original lancets may be traced in the side walls of the chancel. The east window is unusual in design, and the tracery is reticulated. On the north side of the sanctuary is an arched recess with a slab over the grave of W. de la Gare, who was Prebendary of Corringham, and died 1290. The members of the Society afterwards drove back to Gainsborough, where the annual dinner was held, and was followed by a public meeting.—*Nottingham Guardian.*

LANCASHIRE AND CHESHIRE ANTIQUARIAN SOCIETY.—Adlington Hall and Prestbury Church were visited recently by the members of the Lancashire and Cheshire Antiquarian Society under the leadership of Mr. George C. Yates, F.S.A., the hon. secretary. On arriving at the Hall, the members first inspected the front of the building, which was originally half timbered, but in the year 1757 Charles Legh pulled it down and replaced it with brick, erecting in the front a portico with four columns, on the pediment of which are the Legh arms and quarterings, and, underneath, the inscription, "Charles and Hester Legh, 1757." The most interesting portion of the Hall is that which forms the inner side of the quadrangle, and which is still half timbered, black and white, having over the doorway a black-letter inscription dated 1581. This doorway leads to the central hall, which still retains most of its old features, and is open to the roof, which is ornamented with shields of arms. Mr. Yates read a paper on Adlington Hall, and gave a description of the paintings and other works of art contained therein. On leaving, the members rambled through the grounds, and then proceeded through the "wilderness" to Prestbury, and visited the church. Up to the latter half of the fifteenth century no written records exist to tell when the present church was built, but the architectural features furnish moderately correct data. Prestbury Church is more remarkable for the variety of styles of which it is compounded than for any one strikingly grand feature. Every style of Gothic architecture is represented, from the Early English down to Elizabethan and Jacobean debasements, and even forward to the latter end of last century. It may fairly be concluded that the nave and choir are coeval, both Early English, and that they date about the year 1220; that the south side is next in point of antiquity, and dates about 1310-20; that the tower and porch were built about 1480; and that the clearstory of nave and the eastwindow in the choir come next in chronological order. In the church are four incised slabs, two of alabaster and two of stone: one to the memory of Jasper Worth and his wife Alice, 1572; another to Edward Warren, of Poynton, 1558; another to Reginald Legh; and the fourth to Robert Downes and his wife. There are many interesting monuments and tablets within the church, and in the churchyard are many tombstones with quaint inscriptions. On leaving the church the members inspected the Norman doorway built into the school in the churchyard. Until recently antiquaries have accounted this doorway a specimen of Saxon architecture, and have thus been induced to accord a character and importance to it beyond its deserts. The remains of the old cross were carefully examined, and one member was of opinion that there are portions of two distinct crosses.—*Manchester City News.*

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring Gardens, Lord Welby, Chairman, presiding.

Loan.—On the recommendation of the Finance Committee, it was agreed to lend the Lewisham District Board 700*l.* for paving works.

Alterations at Central Works.—The same committee recommended, and it was agreed, that the estimate, amounting to 1,450*l.*, be approved, and that an expenditure of a sum not exceeding that amount be authorised in regard to alterations in connexion with the fixing of additional machinery at the Central Works, the work being executed by the Works Department.

Heath Asylum, Bexley.—The Asylums Committee recommended, "That the supplementary estimate for a further expenditure of 70,000*l.* on the Bexley Heath Asylum be approved."

The Finance Committee observed that it represented an increase of 20 per cent. on the original estimate for the erection of the asylum. The Committee added:—"In July of last year the Asylums Committee foresaw that the vote of 350,000*l.* in respect of the erection of the asylum would be exceeded, and warned the Council to that effect, but without giving any indication of the amount of the excess. The Finance Committee understand that the expenditure contemplated by the present estimate has in great part been already incurred, and they are of opinion that by the action of the Asylums Committee the terms of standing order No. 259 have not been fully complied with, and that the Council has not secured that financial control which it was the object of the standing order to provide."

The Asylums Committee, in their Report dealing with the matter, reported as follows:—"The estimate of the total cost, as now submitted, with a provision of 6,064*l.* 19s. 8d. for contingencies, amounts to 420,000*l.* or 70,000*l.* in excess of the grant. It will be thus seen that the total cost of the asylum will amount only to about 210*l.* a bed, or with cost of land and equipment to 252*l.* a bed, which we think a satisfactory sum when compared with other recently constructed asylums. For instance, we are informed that the new West Somerset Asylum has cost 377*l.* a bed including land and equipment, and the contract price for the building alone of the new North Staffordshire Asylum, exclusive of farm and other outbuildings, electric lighting and architect's commission, was 280*l.* per bed. Other instances are the new Lincolnshire Asylum and the Hill End Asylum, St. Albans, which will, it is stated to us, be likely to cost 300*l.* and 250*l.* a bed respectively. The Council's asylum at Claybury cost some years ago, when building operations were less costly, 236*l.* a bed, exclusive of land and equipment. Finally, we are of opinion that the Council will have in this building full value for the money expended, although the procedure adopted in fixing a definite sum for expenditure before a single plan was prepared has had its disadvantages."

Mr. N. W. Hubbard, Chairman of the Asylums Committee, explained the details of the excess, and contended that the building would give full value for the expenditure.

Mr. Beachcroft moved, as an amendment to the recommendation:—"That a special committee be appointed to inquire into the circumstances which have led the Asylums Committee to involve the Council in so large an expenditure for the provision of the Heath Asylum, Bexley." He pointed out that the foundations of the asylum were put in by the Works Department at a cost which considerably exceeded the estimate. The excess of 70,000*l.* on the whole building could not have arisen from the increased cost of materials and labour. The committee said that improvements were introduced and extra works added; but these additions were not sanctioned by the Council, and, consequently, the standing orders were infringed. The committee were, therefore, in fault, and the matter ought to be specially inquired into.

Mr. Westacott seconded the amendment.

Sir A. Arnold opposed the amendment as a vote of want of confidence in the Committee.

Mr. Dickenson suggested that after the money had been voted, the General Purposes Committee should inquire into the matter.

The Council divided:—For the amendment, 38; against, 68.

Mr. Dickinson then moved to add to the recommendation a rider that the General Purposes Committee do report upon the circumstances of the case.

The recommendation of the Committee, as amended by Mr. Dickinson, was then agreed to.

Housing of the Working Classes.—On the Report of the Housing of the Working Classes Committee, Mr. Westacott protested against "the ridiculous and absurd conditions" imposed by the Local Government Board in regard to the erection of working-class dwellings. These conditions meant that people with children would not be able to avail themselves of the tenements.*

Sir J. Dickson-Poynder, M.P., the Chairman of the Committee, hoped by representations to the Local Government Board to arrive at a satisfactory solution of the difficulty.

The Committee also recommended that they be authorised to invite tenders for the erection of

* See our issue for July 8, page 43, for the Housing Committee's Report on the subject.

buildings on the western side of Ann-street, Poplar.

Mr. Piggott moved an amendment that the Committee should report as to the practicability and cost of a passenger-lift in the proposed buildings. Some of the Council's dwellings had 100 steps in their stairways, which was a great distance for poor women to travel up and down.

Mr. Sydney Webb seconded the amendment.

Sir J. D. Poynder wished to withdraw the recommendation, as the matter was referred to in another Report later on in the agenda.

Leave to withdraw was refused.

The amendment was defeated by a show of hands, and the recommendation was then formally rejected, but it was subsequently adopted in an amended form, to include bills of quantities.

At a later stage of the proceedings it was also agreed—

"That the working drawings and specification in respect of the buildings to be erected on the Cotton-street site, Poplar, be approved; and that upon the completion of the necessary bills of quantities the Housing of the Working Classes Committee be authorised to invite tenders for the erection of the buildings."

"That the working drawings and specification in respect of the erection of Lowood and Chancery-buildings, Cable-street, scheme, be approved; and that upon the completion of the necessary bills of quantities, the Housing of the Working Classes Committee be authorised to invite tenders for the erection of the buildings."

Rutty's House, Bromley Recreation-ground.—On the recommendation of the Parks and Open Spaces Committee, the following was agreed to—

"That the Council do at its first meeting after the summer recess take into consideration the following recommendation — 'That the house at Bromley recreation-ground known as Rutty's house be cleared away and the site laid out as part of the recreation-ground.'"

Fire Appliances on the River.—The Fire Brigade Committee recommended, and it was agreed—

(*a*) That the estimate of 3,751*l.* 15s., submitted by the Finance Committee in respect of part of the cost of a new fire-float for the Fire Brigade, be approved.

(*b*) That, subject to the firm undertaking to make certain modifications in the design to the satisfaction of the Chief Officer of the Fire Brigade, the tender of Messrs. G. Napier & Son to supply for 6,311*l.* 15s. a fire-float containing pumping and propelling machinery be accepted; that the solicitor do prepare a contract with the firm; and that the seal of the Council be affixed to the contract when ready.

(*c*) That, in accordance with the Council's resolution of March 21, 1899, the sum of 20*l.* be paid to each of the following firms, who submitted detailed drawings and specification of a fire-float for the Brigade, namely, Prince's Dry Dock Company, Messrs. MacColl & Co., Limited, and Messrs. A. W. Robertson & Co.

Electrical Traction. — The Parliamentary Committee recommended, and it was agreed, that the Parliamentary Committee be instructed (*a*) to seek powers in the next Session of Parliament to enable the Council to use one or more of the following systems of electrical traction, viz., conduit, trolley, or surface-contact on all or any of its tramways, and for that purpose to reconstruct the tram lines, and erect and place in, under, or over the roads such apparatus as may be necessary, and (*b*) to take the necessary steps in the next Session of Parliament to annul (if necessary) the proviso in Section 24 of the North Metropolitan Tramways Act, 1897, prohibiting the exercise in any place within the administrative County of London, of the powers conferred by that Section as regards the use of electrical traction.

Accepted Tenders, &c.—The following recommendations of the Main Drainage Committee were agreed to :—

"That the tender of Mr. L. Sommerfeld for the supply and delivery of 23,800 tons of lime to the Barking and Crossness outfall works at 12s. 10d. per ton, or 12s. 9d. per ton if unloaded at the rate of 100 tons per day, be accepted."

"That the tender of Mr. John Cochrane, amounting to 920*l.*, for the manufacture, delivery, and erection complete of the additional centrifugal pump required at the Heathwell pumping station be accepted."

"That the estimate submitted by the Finance Committee be approved; that the grip at the outlet from the Heathwell pumping-station be extended without the intervention of a contractor in accordance with the plan prepared by the Engineer; and that the plan and estimate of 26*l.* be accordingly referred to the Manager of Works for that purpose."

"That an expenditure of 1,566*l.* be sanctioned for the reconstruction of a length of about 460 ft. of the east branch of the Stamford Brook sewer at Willesden Junction; that the work be carried out by the Council without the intervention of a contractor; and that the plan and estimate be accordingly referred to the Manager of Works for that purpose."

The River Thames.—The Rivers Committee brought up a report in regard to the Thames, from which we take the following remarks :—

"We have received a communication from the River Purification Committee of the Thames Conservancy Board, stating that they have had under their consideration a letter from the Local Government Board referring to reports made by Dr. Blaxall and the water examiner in 1888 and 1890 respectively, with reference to the soakage of cesspools in the Staines Rural District. The Purification Committee further state that they have had before them reports from their chief inspector and their analytical chemist on the subject, and they have forwarded copies of these reports for the information of the Council. The report by the chief inspector states that part of the information is from the census of 1891, one year after Dr. Blaxall's report, and points out that some of the houses have no cesspits, and that the matter from all goes on to the ground. The report then gives the following particulars as to the houses in each parish, and the general methods of disposal—

Harmondsworth—418 houses, drainage scheme for part, the rest cesspits, old privies, and earth-closets.

Harlington—306 houses, no drainage scheme, cesspits, privies, and earth-closets.

Cranford—108 houses, sewage farm.

Stanwell—460 houses, no general drainage scheme. A scheme for connexion with the Staines Urban District Council's new disposal works is under consideration. 105 houses which in 1891 were in Stanwell (Crooked Billet estate) are now in the Staines Urban District.

East Bedfont—387 houses, no drainage scheme, cesspits, privies, and earth-closets."

Particulars as to houses in other parishes, very much to the same effect, are also given in the report, which proceeds as follows :—

"This leaves 2,373 houses which do not drain into any regular drainage system. The inspector is of opinion that the water flows from north-west to south-east, and in respect of parts of Stanwell, Ashford, Laleham, Feltham, East Bedfont, and Hanworth reaches the Thames at the lower end of Sunbury. Other parts of Laleham and Littleton, and all Shepperton are cut off by the Ash stream. Periodical samples of water are taken below Sunbury lock and Platt's eyot.

The chemist, in his report, states that with regard to Dr. Blaxall's report, he agrees with it as to the danger of typhoid arising from possible contamination of spring water, and that he had had occasion to point out that the typhoid death rate in large towns supplied with spring or lake water is generally high, as compared with towns which derive their water supply from rivers. He says that as this is true of large towns on the Continent as well as in the British Isles, it cannot be merely an accidental coincidence. The chemist expresses the opinion that there is no danger to the Thames water supply from the cesspools in the Staines district, or a typhoid epidemic must have developed in the district served by the water companies, when we consider how imperfect the filtration of the water was some years ago. As these reports are important we have forwarded copies of them to the Water Committee, and requested the Chief Engineer and the Chemist of the Council to report upon them."

Widening Cheyne Walk.—The Improvements Committee recommended and it was agreed, that the estimate of 4,400*l.* submitted by the Finance Committee be approved, and that the Council do contribute, on the usual conditions, one-half of the net cost of widening Cheyne Walk, as shown by red colour upon the plan submitted by the Vestry of Chelsea, such contribution not to exceed the sum of 4,400*l.*

The Council soon after adjourned.

PARISH COUNCIL'S NEW BUILDINGS, PAISLEY.—A new building has been erected at Paisley for the Parish Council. The buildings, which are two stories in height, are situated on the north-east corner of the crossing of Back Sneddon and Maxwell-street, and have been erected from plans prepared by Mr. T. G. Abercrombie, Paisley. They are L-shaped, with the principal elevation looking westward to Back Sneddon and the south elevation abutting on Maxwell-street. All the principal administrative departments are on the ground floor. They are reached from the public entrance. There is a waiting-hall on the ground floor for the use of applicants and for pay-days. This hall is capable of accommodating 120 persons. The board room, committee rooms, and other necessary apartments are on the first floor.

METROPOLITAN ASYLUMS BOARD.

THE fortnightly meeting of the Managers of the Metropolitan Asylum District was held on Saturday at the County Hall, Spring Gardens, the Right Hon. J. G. Talbot, M.P., presiding.

Homes for "Defective" Children.—The Children's Committee submitted plans for a complete overhauling of No. 16, Elm-grove, Peckham, recently acquired for a home for boys of defective intellect, on the lines recommended by Messrs. C. & W. Henman, architects. The estimated cost was 625*l.*, exclusive of hot and cold water service and bath-room and lavatory fittings. Mr. J. H. Lile, C.C., protested against buying a house for 1,000*l.* and then spending 1,000*l.* more on repairing its dilapidations. He contended that it would be cheaper to sell the house for old bricks, and then to build another. Mr. G. S. Elliott, Chairman of the Committee, replied that they had to secure a place in a particular district, and could not go out into the country where there was plenty of vacant land. The Committee's proposal was carried.

Ophthalmic School at Swanley.—The Works Committee submitted the finished plans prepared by Messrs. Newman & Newman, architects, of the proposed White Oak School at Swanley, for the accommodation of ophthalmic children. The school, like that already decided upon at Brentwood, will accommodate 360 children, and will have a total staff (exclusive of school teachers) of eighty, of whom seven will be non-resident. The children will be housed in cottages containing twelve beds each, which will be built in pairs and arranged in five groups, so that three pairs of cottages will form one group, each group accommodating seventy-two children. The estimated cost of the buildings is 110,524*l.*, or a little over 300*l.* per child. The cost of maintenance of the institution is estimated at 13,165*l.* per annum, or between 36*l.* and 37*l.* per child. Mr. W. M. Acworth objected to the excessive cost of the proposed institution, which he said would cost, including interest and sinking fund on the land and buildings, about 55*l.* per child per annum. This was two-thirds more than the most expensive of the barrack schools, and as much as the cost of a middle-class school of some standing. Mr. P. Wells said the Committee were ignorant of the cottage home system, and they ought to have visited Banstead, Hornchurch, and other places where it was in successful operation at a cost of 26*l.* per child. Lieutenant-Colonel Myers thought the cost might have been reduced if the cottages had been made larger. Mr. James Brown, Chairman of the Works Committee, replied that this was not simply a school, but a hospital and school combined. The cubic space per child was double what it would be in an ordinary school. The plans were then adopted.

Darenth Asylum.—A year ago the late Darenth Committee recommended that Messrs. A. & C. Harston, architects, should be employed to prepare specifications of the painting work required at that asylum. This recommendation was referred back, and the Committee afterwards appointed a foreman of works, who prepared specifications and bills of quantities of the work required. These specifications having now been submitted to the Surveyor of the Board, Mr. C. E. Dance, for his approval, the Hospitals Committee recommended that tenders should be invited for the necessary painting, distempering, and cementing, the estimated cost being 11,000*l.* This was agreed to, the Rev. G. W. Pope remarking that it was rather a heavy amount to spend over one institution in a single year, and that he thought the work should have been divided into sections and spread over several years.

Leavesden Asylum.—The Hospitals Committee asked authority to purchase the materials and employ the necessary labour for improving the sanitary arrangements at Leavesden Asylum, the work to be carried out under the supervision of the surveyor, who estimated the cost at 4,900*l.* The Rev. G. W. Pope protested against this proposal to spend a large sum of money without competition as likely to lead to extravagance. Mr. Paul Howard defended the direct employment of labour, but Mr. J. Brown said that this work was largely of a special kind, for which it would not be easy to get the proper workmen, and he thought it was a case in which there ought to be proper competition by respectable firms. An amendment to invite tenders was agreed to on a show of hands by twenty-eight votes to nine.

BUILDING TRADE TROUBLES.

ANOTHER step has been taken towards a settlement of the differences in the Yorkshire building trade. The result of a "Round Table Conference" between representatives of the employers and the London Order of Bricklayers, held on the 13th inst. at the Queen's Hotel, Leeds, was an agreement whose ratification by the operatives will mean the revoking of the 25 per cent. lock-out—so far as it relates to the members of the London Order—and a resumption of work within a fortnight. The men's delegates intimated that any understanding arrived at would have to be confirmed by the Yorkshire branches of the Order before it could take effect. Mr. W. Nicholson, of Leeds, presided over the conference, and with Mr. Paul Rhodes, Leeds, Mr. Thomas Goates, Hull, Mr. G. H. Walters, Selby, and Mr. George Mansfield, York, represented the employers. The delegates of the operatives were Mr. John Batchelor (their general secretary), Mr. W. T. Newlove, Leeds, Mr. H. H. Diver, Sheffield, Mr. C. Spence, York, and Mr. M. Emmerson, Hull. In view of the fact that the employers came to the conference prepared to settle definitely, a consultative committee, consisting of Mr. E. A. Good, Hull, Mr. Ullathorne, Selby, Mr. G. Longden, Sheffield, Mr. Bagnall, Wakefield, and Mr. James Bycroft, Barnsley, were at call to assist their colleagues, if needed.

The settlement, as a whole, will be the subject of a ballot of the operatives. If the vote confirm the findings of the Conference the lock-out will be withdrawn.

The following is the full text of the agreement, with the names of the signatories :—

Clause 1 of Yorkshire Manifesto. Rule adopted. —"That no foreman shall be compelled to join a trades union, nor compelled to leave one." N.B.— "The definition of the word foreman is a man who is constantly in charge of work, and not continually laying bricks."

Clause 2 of Yorkshire Manifesto. Rule adopted. —With reference to the alleged refusal of members of the Operative Bricklayers' Society to work with men who may not belong to a trades union, the members of the O.B.S. agree that they will only use reason land argument to induce non-unionists to join their union. But if the employees can prove to the employer that certain workmen are defaulters (as defined by Rule 6, clause 5, of the O.B.S.'s present rules), the employer shall see that such person objected to shall pay up all arrears due to his society or remove him. Such men or foremen who have left the society during the dispute, if they have paid up all arrears due to the society up to the time of leaving it, shall not be considered defaulters, and the men shall not refuse to work with them.

Clause 3 in Yorkshire Manifesto. Rule adopted.— For the purpose of demarcation of work joint committees shall be established in the different districts equally representative of the employers and the mechanics, whose representation shall be equally divided amongst the different branches of the trade in question. These committees shall as far and as soon as possible draw up schedules of work which it is recognised belong to certain branches of the trade. To such committees shall be immediately referred all points of dispute as to demarcation, and the decision of the majority in each case shall be accepted as binding on both sides. Should they fail, however, to decide them, the matter shall be referred for settlement to a similarly constituted joint committee representative of the Yorkshire Federation and the Bricklayers' Central Society, whose decision shall be final, provided that the employers' representatives are bona fide employers of bricklayers direct. Pending such reference to the Local Committees, no strike or lock-out shall take place, but the decision of the employer shall be provisionally accepted as to who shall do the work, provided that preference shall be given to that branch of the trade which in practice has done the work before in that district, and provided that no preference be given on account of the payment of lower wages.

Clause 4 in Yorkshire Federation Manifesto does not apply to the Bricklayers' Society.

Clause 5 in Yorkshire Federation Manifesto. Rule adopted for apprentices.—No employer shall employ more bricklayers' appentices than is equal to one-fourth of the total number of operative bricklayers employed by him. All apprentices shall be legally bound for not less than five years, and to commence not later than sixteen years of age. N.B.—Recommendation that no employer engages any apprentices until he has been in business twelve months.

Clause 6 in Yorkshire Manifesto. Rule adopted for Conciliation Board.—In the event of a dispute arising on any job or works, the district officials of the Bricklayers' Society shall send written notice to the local association of Master Builders, who shall inform them within forty-eight hours whether the said builder is a member of that body. If so a strike shall not be sanctioned by the Bricklayers' Society until six clear working days have expired from the receipt of such notice, during which time the matter shall be considered by the employers and the representatives of the workmen, with a view to an amicable settlement.

Failing a local settlement, reference shall immediately be made to the Yorkshire Federation and the Central Committee of the Operatives, and until five days have expired from the date of this reference no strike or lock-out shall be sanctioned either by the operatives or the Yorkshire Federation. The employers agree to suspend the work in dispute pending a settlement.

Conditions of Settlement.

1. Men return to work at the old rate of wages or wages already agreed upon, and to return to their old masters.

2. All men returning to work must do so peaceably with the non-union men now employed, whether of their own trade or allied trades.

It is understood that the O.B.S. will have to submit the terms of settlement to their members for approval before work can be resumed. The vote will be taken as soon as possible.

(Signed)

MASTER BUILDERS.	OPERATIVES.
W. NICHOLSON (Chairman), Leeds.	JOHN BATCHELOR, Gen. Sec., London O.B.S.
PAUL RHODES, Leeds.	H. H. DIVER, Sheffield.
GEO. H. WALTERS, Selby.	C. SPENCE, York.
THOMAS GOATES, Hull.	M. EMMERSON, Hull.
GEO. MANSFIELD, York.	W. T. NEWLOVE, Leeds.

The Executive Council of the Northern Centre of Federated Building Employers also held their half-yearly meeting on the 13th inst. at the Queen's Hotel, Leeds. There was a large gathering, over which Mr. J. Spink, of Sheffield (President of the Yorkshire Federation), presided. The meeting expressed approval of the principle of conciliation between employers and workmen, but left the details for further consideration. A resolution was passed in favour of a Provident Society for the Centre in conjunction with the Yorkshire Branch. It was further resolved that better measures should be adopted with the view of preventing men leaving affected districts to obtain work elsewhere. The Council discussed at considerable length the subject of the reconstruction of the National Association, and appointed a committee to draw up rules as to the procedure and scope of the proposed organisation. There was a unanimous feeling in the meeting as to the desirability of the Northern Centre and the Yorkshire Federation being brought into closer touch than heretofore, the view being that their comparative weakness had been chiefly attributable to the laxity of the National organisation. It was further urged that if the present crisis was to be brought to a speedy termination this would have to be done by the Northern Centre and the Yorkshire Federation acting in concert and independently of any other body.

Owing to some differences regarding the carrying out of the late agreement terminating the recent lock-out arrived at between the Master Builders' Association and the National Association of Operative Plasterers, the former asked the plasterers to meet them and discuss the matter. Mr. Dellar, on behalf of the plasterers, wrote to the master builders that it would be necessary to submit their request to his executive council. It is expected that the masters' request for a meeting will be granted.

The Leeds branch of the Amalgamated Society of Carpenters and Joiners have adopted a resolution to the effect that unless the 25 per cent. lock-out by the Federated masters in the city is withdrawn on or before Friday, the 21st inst., they will themselves withdraw the remaining 75 per cent. on the following day, giving, of course, the usual two hours' notice.

Since the settlement between the Yorkshire Federation of Building Trade Employers and the London Order of Bricklayers, the National Association of Master Builders have decided to meet the Associated Trade-Unions to discuss any questions that may be raised by either party to the conference. If these matters are satisfactorily disposed of, then the Federated Employers will be ready to consider the scheme formulated by the trade-unions for the establishment of a Joint Conciliation Board, with an ultimate reference of disputed questions to independent referees. A communication to this effect has been made by the Secretary of the Employers' Federation (Mr. J. A. S. Hassal, of Liverpool) to Mr. Cherry, the acting Secretary to the combined trade-unions, with the additional statement that on the official acceptance of the proposal to hold a joint conference, the Yorkshire Employers' Association will be advised to withdraw the twenty-five per cent. lock-out in the county as against the members of the trade-unions. The offer has been officially accepted on behalf of the trade-unions, and the joint conference will accordingly take place at the Salisbury Hotel, London, on Thursday, July 27. It will be taken part in by twelve representatives from either side. It was found impossible to call the parties together at an earlier date, as the National Association of Master Builders had previously arranged to hold their half-yearly meetings in Plymouth this week.

SEWER VENTILATION IN LEICESTER.

A REPORT has just been submitted by the Borough Surveyor (Mr. E. G. Mawbey) to the Highway and Sewerage and Sanitary Committees of the Leicester Corporation, on the question of sewer ventilation, embodying recommendations which, says the Leicester *Post*, have been unanimously adopted at a joint meeting of those Committees. In his report of September, 1894, he recommended the closing of surface ventilators and the adoption of an improved system of ventilation entirely by means of shafts, in consequence of the nuisance arising from the open grid system, but it was decided at that time by a majority of the Highway Committee that in recently constructed or new sewers open grids and manholes should be provided, but that the Borough Surveyor should be authorised to provide other modes of ventilation in any case where, from the circumstances of offensive emanations from manholes, such manholes were closed, and that ventilation be secured by chimney shafts or pipes up the side of houses, factories, churches, schools, or other public buildings where possible. At midsummer, 1894, there existed on the foul-water sewers 978 surface ventilating grids, and on the storm-water sewers there were 581 open grids. Since that time 134 open grids on foul-water sewers and eighteen on storm-water sewers had been closed by order of the committee in response to complaints of nuisances, and in each case adequate shaft ventilation had been substituted, and altogether, in place of grids closed, and as supplementary ventilation, 144 ventilating shafts had been fixed. There were, however, at the present time existing on the foul-water sewers 1,639 surface ventilating grids, and on the storm-water sewers 1,247 open grids, making a total of 1,327 additional open grids since 1894. These open grids had been a constant source of expense and trouble, occupying much of the inpectors' time in investigating cases of nuisance arising from them. The system of surface grid ventilation had been well tried in Leicester, under all conditions, including those most favourable to it, with the result that it had been found a fruitful source of nuisance, by reason of the offensive emanations, and strenuous complaints from the public were of very frequent occurrence. This had also been the case in the wide streets of new building estates, where the open grids had been placed throughout at short distances apart, with excellent sewers of the best type, which have been regularly flushed. Pipe shafts had been erected at short distances from the grids complained of, and some of the grids left open, but these grids still acted frequently as offensive outlets, as proved by the many anemometer tests taken, as well as by the stench arising from them. On the other hand, the tests made of the working of the pipe shafts had shown them to act most efficiently as extractors. Finally, these grids complained of had to be closed, proving the fallacy of the idea that, with a combination of open grids and tall shafts, the grids might be relied on to act as inlets only. It was pointed out that when, on January 10 last, the Local Government Board sanctioned a loan of 29,479*l.* for the tributary sewerage scheme, they entirely approved of the shaft system. In concluding his Report the Borough Surveyor says :—

"It will be obvious, from the facts I have laid before you as to the proved efficiency of the shaft system, that my confidence in the recommendations made in my former reports, in favour of ventilation without open grids, combined with ample flushing of the sewers, must have since been materially strengthened, and I therefore now beg to submit the following recommendations for the ventilation of all sewers in future, from which it will be seen that I am not suggesting any large expenditure for the wholesale closing of open grids, and the erection of ventilating shafts in substitution thereof, but, rather, that the grid system of ventilating the existing sewers be gradually changed and improved as the necessity arises."

The recommendations are :—

1. That closed manhole and lamphole covers be used in the construction of foul and storm-water sewers in all public and private streets and roads, and that all such sewers be ventilated by high shafts, fixed, with the consent of the respective owners, wherever necessary and practicable, on houses or other buildings, and where not practicable by means of standard ventilating shafts on the footways, or other suitable places.

2. That every public ventilating shaft shall be fixed clear of any windows or chimneys, and arranged to terminate at a height above the level of the ridge of the building on which it is fixed, or nearest to which it is erected.

3. That the ventilating shafts to be adopted be of the sizes and descriptions recommended in the report of the Borough Surveyor, dated September, 1894, and since adopted as set out in this Report; or of such other sizes and descriptions and situated at such distances apart as the Highway and Sewerage Committee may from time to time, on the report of the Borough Surveyor, determine.

4. That the Borough Surveyor be authorised to enter into negotiations with builders and others depositing plans, from time to time in future, for permission to erect ventilating shafts of the requisite sizes and distances apart, on houses and other buildings in all public and private streets, for the effectual ventilation of the sewers, the Corporation offering as an inducement to make free of cost to the owners the sewer connexion, and to lay up to the building line the private drain branch required for such building, as well as the branch drain required for the ventilating shaft.

5. That where a disconnecting trap is fixed on a private drain, a 4-in. ventilating pipe is, wherever practicable, to be provided by the owner and carried up the building from the drain on the sewer side of the trap, and terminating not less than 3 ft. above the eaves of the roof and clear of all windows.

6. That the Borough Surveyor be authorised and directed to substitute shaft ventilation for any sewer grid which has, to his satisfaction, been proved a nuisance, and also to close such grid when the arrangements for the erection of the shaft have been made; and to regularly report to the Highway and Sewerage Committee the number which have been so closed.

Mr. Mawbey's recommendations were strongly supported by the Medical Officer (Dr. Monk) in the course of his annual Report, and, as already intimated, were adopted by the Joint Committee.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

AT the meeting of the London County Council on Tuesday, the following applications under the London Building Act, 1894, were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

Lines of Frontage.

Hampstead.—Three-story buildings on the north-east side of Finchley-road, Hampstead, over the London and North-Western Railway (Mr. W. J. Ancell for Messrs. Lyons & Co., Limited).—Consent.

Lewisham.†—A house with shop on the south side of Sydenham-road, Lewisham, to abut upon Newlands Park (Mr. W. F. Young for Mr. R. Norden).—Consent.

City of London.—Two oriel windows at the first and second floor levels, in front of Nos. 28, 29, 30, and 31, Bishopsgate-street Within (Mr. T. H. Smith).—Refused.

Width of Way.

Clapham.—A bakery in a yard on the east side of Green-lane, Lavender Hill, Battersea (Mr. W. C. Poole for Mr. J. Stanley).—Refused.

Formation of Streets.

Hampstead.†—That an order be issued to Mr. J. Reynolds sanctioning the formation or laying out of a new street for carriage traffic to lead from Ferncroft-road to Kidderpore-avenue, Finchley-road, Hampstead. That the name Cecilia-road be approved for the new street.—Agreed.

Islington, North.—That an order be issued to Mr. R. Midworth sanctioning the widening of Thomas-street, Archway-road, Islington (for Mr. J. C. Hill).—Agreed.

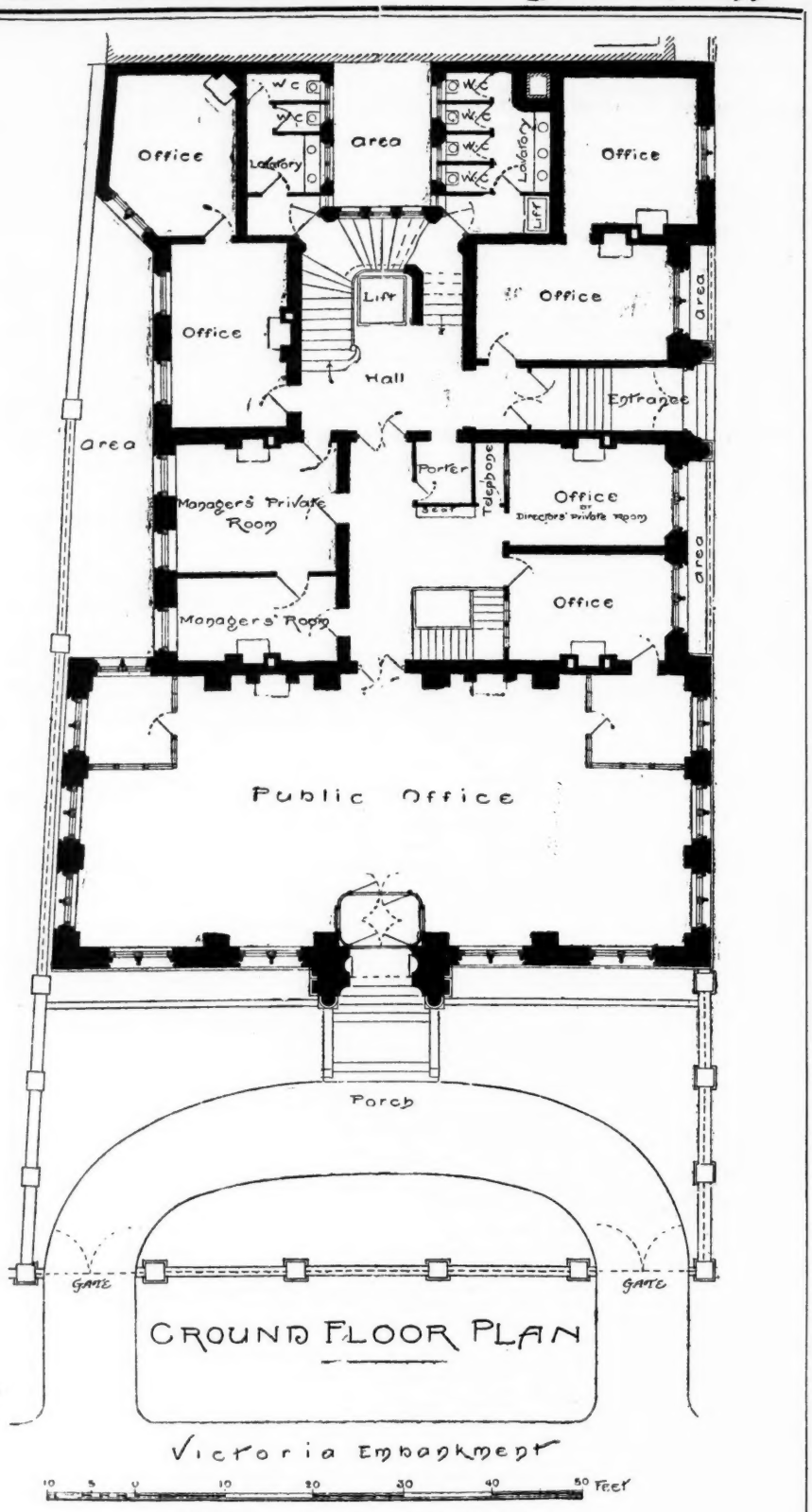
Lewisham.†—That an order be issued to Mr. D. Watney, sanctioning the formation or laying out of two new streets for carriage traffic upon the Belmont Estate, Belmont Hill, Lee, and in connexion therewith, the widening of portions of Belmont Hill and Belmont-road (for the Mercers' Company). That the names Boyne-road and Caterham-road be approved for the new streets.—Agreed.

Deviation from Certified Plan.

Camberwell, North.—Certain deviations from the plan certified by the District Surveyor, under Section 43 of the London Building Act, 1894, so far as relates to the proposed erection of six shops, with dwelling rooms over, on the site of Nos. 168 and 170, Southampton-street, Camberwell, and sheds at the rear abutting on Havil-street (Mr. W. Cox for Messrs. E. Bell & Co.).—Refused.

The recommendations marked † are contrary to the views of the Local Authorities.

PALACE OF VARIETIES, CAMBERWELL. — This building is being erected on Denmark Hill, near Camberwell Green. It will have seating accommodation for over 2,000 persons. Mr. E. A. E Woodrow is the architect, and Mr. C. Gray Hill, of Coventry, the builder.



Hamilton House, Victoria Embankment.

Illustrations.

HAMILTON HOUSE.

THIS building is being erected in the extreme south-west corner of the City of London, on the Victoria Embankment, having one side in Temple-avenue and the other facing the Inner Temple Gardens, on which side a set-back has had to be made owing to a right of light possessed by the Temple. In consequence of this prominent position it will have three frontages architecturally treated, and all in Portland stone. It is being erected for the Employers' Liability Assurance Corporation, whose present offices in King William-street, E.C., are found to be very inadequate for their increasing business. The portions not utilised by them will be let for offices.

Hamilton House has been named after the Chairman of the Corporation, Lord Claud Hamilton.

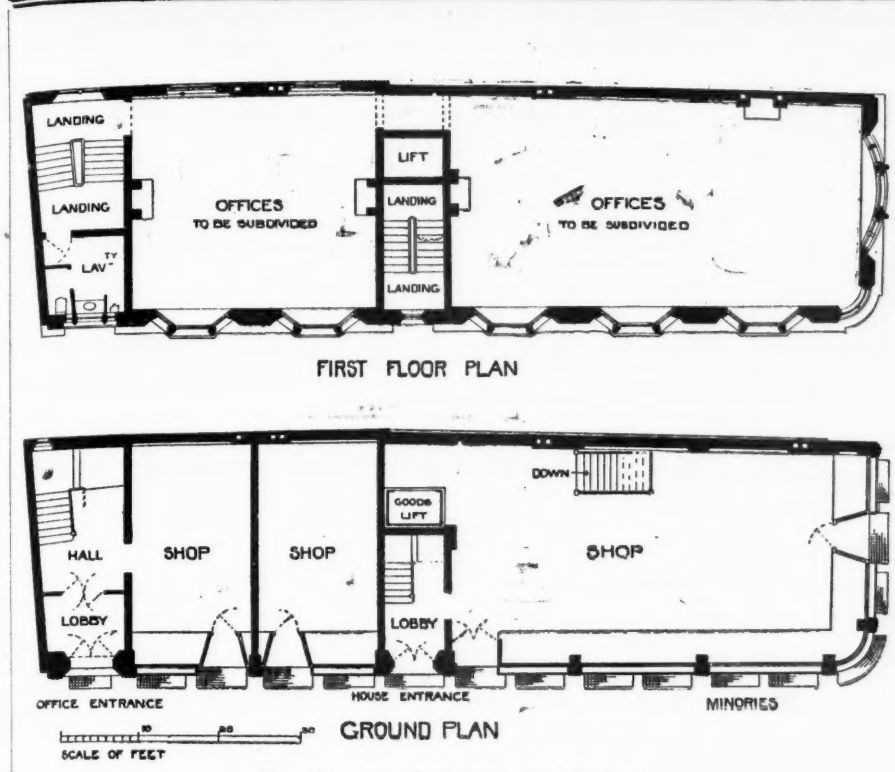
The public office will be on the ground-floor, south side; in the basement a hall for company meetings, and in a sub-basement a number of strong rooms to be let on lease. On the upper floors, suites of offices, all of fireproof construction with electric lighting, lifts, &c.

Being built partly on what formerly had been the foreshore of the Thames the foundations were necessarily costly, the whole of the south or river side against the Metropolitan District Railway had to be filled, owing to difficulties caused by the foundations of a large light hole of the railway. The entire site was covered with a deep bed of concrete. Messrs. Higgs & Hill are the contractors. The architect is Mr. W. Emerson, of Westminster.

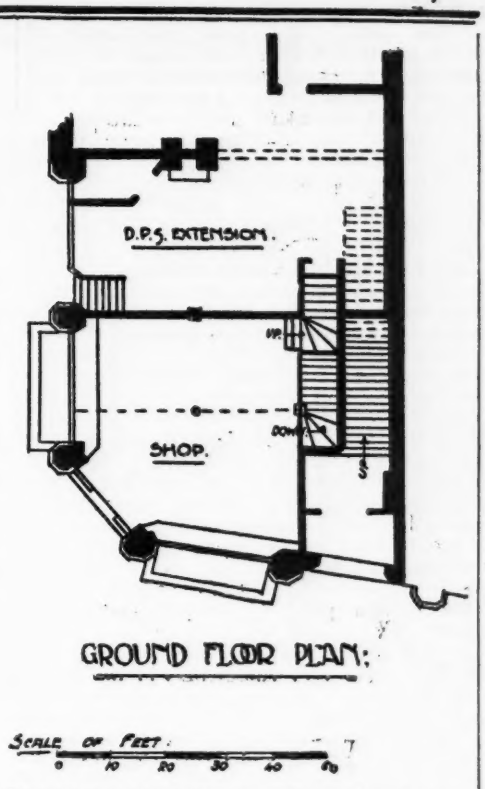
DESIGNS FOR WALL PAPERS.

THESE designs have been made by different artists, whose names are given on the plate, for wall-papers to be made by Messrs. Hayward & Son.

It will be seen that, with the exception of the centre one by Mr. Gwatkin, they rather illustrate the recent tendency to return to naturalism in wall-paper design, especially in the two by Mr. Belcher, on the right-hand side of the plate. These are both founded on hollyhock,



New Premises, Bull-street, Birmingham.



District Provident Charity Offices, Manchester.

the lower one being printed on rough canvas to give it the tapestry effect intended. This would no doubt look well, but we hope such wall coverings will not be adopted in London, for they are insanitary, as collecting dust and germs. In the country there is no objection to them.

Mr. Pite's design is founded on the tulip, and may be said to be a good compromise between naturalism and convention. Mr. Gwatkin's design beneath, made a good while ago, belongs to the same class.

If the sheet be taken as an illustration of conventionalism *versus* naturalism, we should say that conventionalism, as illustrated in the central design, quite carries the day.

NEW PREMISES, BIRMINGHAM.

THESE premises, which are now nearing completion, are intended for a fruit and Italian warehouse, and consist of shops with basements in the lower stories, offices for sub-letting on the first and second floors, and house accommodation for manager and staff on the third and fourth floors. There are two main entrances at the ground-floor besides the shop doors, one for the offices and one for the house premises.

The roof, which is in the form of an asphalte flat on concrete, is intended to be used as a yard for empty packages, &c., and is communicated with by a goods hoist and staircase, the full height of the building, while there is also provided, at this level, a fruit-ripening house or conservatory adjoining the corner turret.

In style, the building is modern Renaissance and the prevailing colour is a deep red, this being the characteristic of the Stourbridge clay of which both bricks and terra cotta are made.

It may be mentioned that considerable curiosity was aroused when the work of excavation began after the demolition of the old premises, as it was known that the previous buildings occupied a portion of the site of an old Priory (from which an adjacent thoroughfare derives its name), but beyond a yard or two of rubble walling and a few scattered human bones, nothing of antiquarian interest was unearthed.

The architects of the new buildings are Messrs. Essex, Nicol, & Goodman, of Birmingham, and the builder, Mr. C. Gray Hill, of Coventry.

MANCHESTER AND SALFORD DISTRICT PROVIDENT SOCIETY.

THIS building is now in course of erection at the junction of Queen-street with Deansgate, Manchester. On the adjoining site are the new premises of the City Mission, of which Mr. Henry Lord is architect, and an attempt has been made, as far as rights of light permit, to effect some harmony in the general block.

The lower portion of the front is in stone. Above the shop cornice the material is Ruabon red terra-cotta, and the roof is to be covered with green slates.

Messrs. Neill & Sons are the builders, and Mr. Charles Heathcote the architect.

CARVED CUPBOARD AND FONT, PIERREFITTE.

THESE objects are in the village Church of Pierrefitte, Hautes Pyrenées, a small village at the end of the valley, whence start the two mountain roads, one leading to the celebrated cirque of Gardarnie, with its highest waterfall in the world (a thread of water descending straight from over 1,000 ft.); the other road leading to the fashionable health resort of Cauterets. This cupboard is carved in a sort of flat relief, and is used as a receptacle for things worthy of veneration or of any particular value. The white-metal work of the hinges and lock escutcheons is worthy of notice, though the drawing is on rather too small a scale to give any detail; in many cases this metal work is very original and quaint in design. There is a somewhat similar example in the Church at St. Savin, which contains the old organ illustrated in another plate.

The font is curious; the black part of the stone seems to have obtained its colour by polish, and the white is got by chipping and tooling the stone. The figure is repeated on the other side. A. E.

OLD ORGAN, ST. SAVIN.

THIS dilapidated but picturesque organ case is in the ancient and interesting Romanesque Church of St. Savin, a village situated in the Hautes Pyrenées, above half way between Argelés and Pierrefitte, on the upper road; it crowns the crest of a hill overlooking the valley, and the church was once no doubt fortified. The organ has been struck by lightning, which accounts for its ruinous condition and for its twisted pipes. The thin white boards painted with wretched arabesques in colours, are an addition; the same sort of coarse decoration (if so it can be called) spoils many a church in the district. The three carved heads at one time put out and withdrew their tongues as the bellows were worked, though how this should have been thought an aid to devotion it is difficult to understand.

A. E.

HOSPITAL, WALLASEY, CHESHIRE.—The foundation-stone of the new Central Hospital, Liscard, near Wallasey, was laid on the 6th inst. Messrs. Maxwell & Tuke are the architects, and the contractors are Messrs. Joshua Henshaw & Sons.

TRADE CATALOGUES, &c.

MESSRS. HEAL & SON send us a specimen of what may be called the latest mode in æsthetic furniture catalogues, the special characteristic of which is to illustrate the furniture by outline drawings in thick clumsy black lines, after the manner of the old school of wood engraving. This is a mere affectation, as drawings of this kind can now be made much better with pen and ink and reduced by lithography, and there is not the slightest occasion for the thick black line which was really a natural outcome of the process of early wood engraving. Apart from this the designs for wardrobes, chairs, &c., are in very good taste and depend more on line than on ornament for their effect; but the designs, like the method of drawing, show rather too great an affectation of simplicity.——The Cordelova Co. (Edinburgh) send an illustrated catalogue of designs in "Cordelova," without giving us any information as to what it is; but it is apparently a material in which high-relief ornament can be produced in imitation of modelled plaster, and put up in sheets. The designs illustrated in the catalogue, and presumably kept in stock, are numerous and mostly in a good style, and they may be convenient for architects who do not make their own designs for plaster decoration.——Mr. Jas. Gibbons (Wolverhampton) sends a beautifully got-up catalogue of lock and door furniture, showing both practical and artistic details. The general character of the designs is fairly good; as usual, the less elaborate ones are the best. On the practical side the maker claims to have made a master-key which cannot be tampered with. To quote the catalogue—"In making locks to differ with a master-key under the old system, the levers of the locks must all be made the same, on account of the master-key going over them, and the only variance that is made on the locks is on the wards. It is thus simple for a man to file the ward out and make an ordinary key into a master-key. This has already been done at the Hotel Cecil, London. Gibbons varies all his locks on the levers, so that one key does not indicate in the slightest manner what another key may be on the building, and still his small master-key, entering through another keyhole, will open all the locks. Thousands of locks may be made to differ securely on this method."——Messrs. Adams & Co. send us their illustrated catalogue of latest sanitary appliances, in which they state that the introduction of their "Titanite" ware has enabled them to add considerably both to the finish and the strength of their goods. The catalogue illustrates several classes of water-closet basins, also a new apparatus for water-supply to school and railway urinals, to flush them only when used, by a siphon action incident on the filling

of the basin. This will save water, no doubt, but, unless where that object is really important, we prefer the continual flush in a sanitary point of view; but the apparatus is a simple and ingenious one. —— Messrs. R. Melhuish & Sons send us a large and extensively illustrated catalogue of tools and machinery—tyre-bending machines, cutters for gearing-wheels, many forms of drilling machine, tool cabinets, lathes, and almost every variety of smaller tools. —— Messrs. Mark Fawcett & Co. send a book containing a series of photographs of buildings in which their floors have been used, accompanied by (what is of more value to the reader) some statistics, English and French, as to tests on their floors.——The United Asbestos Company send us a book of illustrations of their "Salamander" ceiling decorations; this appears to be another substitute for modelled plaster, but the main point (as the name implies) is that it is said to be absolutely incombustible. The designs, to say truth, are not very much, but of course any other designs could be carried out in it.——The Company formed under the title "Ripolin Limited" (London, Paris, and Amsterdam) send us samples of the application of their Ripolin paint to various materials—plaster, metal, and wood. This is a paint intended to imitate the effect of glazed tiling, which it does very successfully in the specimens sent to us; of course, the durability of the surface is the real point. The manufacturers claim that "it can be washed without losing its porcelain-like gloss, and forms a secure protection against rust." If so, it is a very useful material.

BOOKS RECEIVED.

POPULAR COUNTY HISTORIES: OXFORDSHIRE. By J. Meade Falkner. (Elliot Stock.)

The Student's Column.

ROADS: THEIR CONSTRUCTION AND MAINTENANCE.

PART I.—MATERIALS (*Continued*).

4.—BASALTS AND ALLIED ROCKS.

Basalts.

ALTHOUGH many road stones of high reputation belong to the class of rocks known to geologists as *basic*, few of them are in reality basalts in the geological sense, in spite of the fact that custom has given a kind of commercial value to the name, which quarry owners will not easily on that account abandon. Just as the term granite is used indiscriminately for a large variety of rocks, so basalt is generally understood to include all those dark-coloured igneous rocks, the majority of which belong petrographically to the dolerites and diabases.

The basic rocks are connected by almost insensible gradations with those previously described; they agree, however, in possessing a low percentage of silica, with a marked increase in specific gravity in proportion as the heavier metallic oxides are more abundant. The dark appearance and weight of these rocks is not always a safe guide for their recognition. Many of the intermediate rocks, such as some of the diorites, rich in hornblendic constituents, have all the outward appearance of dolerite, and their distinction in the hand specimen is a matter requiring some care. The chief mineralogical characteristics of the basic rocks depend upon the comparative absence of quartz, except as a secondary constituent, and also of the more highly-silicated minerals. The felspars are usually varieties rich in lime, such as labradorite or anorthite, potash felspar being of rare occurrence. Under the microscope the plagioclase felspars are easily recognised by their characteristic multiple twinning.

The dark colour of these rocks, and the rapidity with which a superficial crust of weathered stone forms upon them, render them unsuitable for most architectural purposes. As road stone, however, many of these rocks are highly suitable, on account of the toughness of the ferro-magnesian constituents. Not being so hard as the more siliceous rocks they do not possess the same tendency to wear to a smooth surface.

The ferro-magnesian minerals, so important a feature in road stones, include different varieties of pyronene, such as augite and diallage, as well as the rhombic forms bronzite and hypersthene. Hornblende and biotite, if present, are usually only accessory, the former often resulting from the alteration of augite. A mineral often occurring in the basic rocks is olivine, which may be described as a ferro-magnesian silicate, very prone to alteration into the hydrous magnesian silicate, serpentine; the process of alteration being usually accompanied by the separation of iron oxide in the form of magnetite or hæmatite.

Decomposition products, in the form of green fibrous chloritic and serpentinous matter, are a characteristic feature of these rocks; although augite often remains quite fresh and unaltered even in the presence of a considerable amount of alteration in the accompanying minerals.

The structure of the basic rocks is usually compact; the consolidation of the minerals having taken place more or less simultaneously, there is not the same tendency to porphyritic developments as in the more acid types. There is in consequence often a more intimate blending of the constituent minerals, with a good deal of mutual interpenetration of felspar and pyronene. In the diabases this tendency is especially noticeable, the augite having often consolidated in broad plates, moulded upon and embracing or wrapping round the felspar crystals. This structure, called "ophitic," must not be looked upon as the equivalent in the basic rocks of the micropegmatitic structure exhibited by felspar and quartz in the acid rocks. A real intergrowth of felspar and augite similar to pegmatite is occasionally seen, augite in this case taking the place of quartz.

The ophitic structure is favourable to the increased cohesion of the crystalline particles in an interlocked mosaic, the mechanical strength of which is enhanced by the peculiar toughness of the augitic mineral. In some cases, however, the augite is present in rounded grains, imbedded in a plexus of lath-shaped plagioclase prisms.

Although not exhibiting large porphyritic crystals, many of these rocks are coarsely crystalline, graduating to the finest grain, in which the mineral components are distinguishable only with difficulty under the microscope. Like the granites, they occur either as more slowly-cooled plutonic masses, or in more

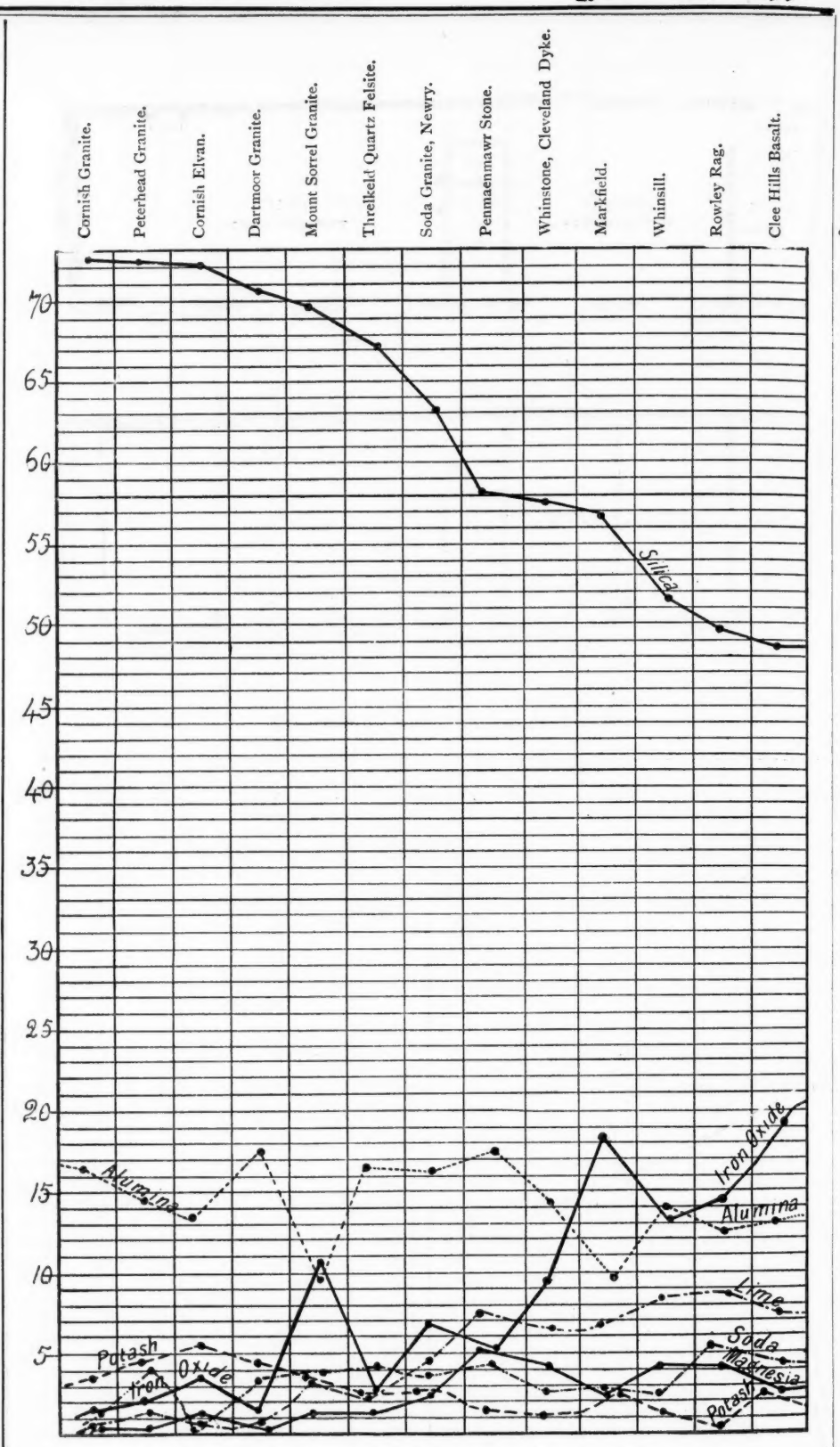


Diagram of Proportional Constituents of Various Rocks.

rapidly-consolidated dykes, veins, sills, or lava flows. Even in the same mass of rock differences of structure are caused by more or less rapid cooling, the margins being often less perfectly crystalline than the interior portions.

Penmaenmawr Stone.—This famous stone occupies a position on the border between the diorites, already described, and the more basic diabases. It is, in fact, variously described by petrographers either as a quartz diabase or a quartz diorite. The minerals present are felspar, chiefly plagioclase, augite, and a rhombic pyronene, with some biotite, quartz, and magnetite. The quartz is usually interstitial, in more or less ophitic plates, but is sometimes intergrown with a felspar, apparently orthoclase, forming a micropegmatite, in which both minerals are so clear and limpid that it is difficult to distinguish between them. The rhombic pyronene is a ferriferous enstatite, which is, in some cases, altered to a greenish, fibrous pseudomorph. Augite is much less decomposed than the enstatite. Biotite, only sparingly present, is often changed to chlorite. The iron ore is chiefly ilmenite, or titaniferous magnetite, and long prisms of apatite are often abundant.

The most common variety is of medium grain, greenish grey in colour. Veins of a more acid type are irregularly distributed through the mass, having a marked micropegmatitic structure. These veins consist chiefly of orthoclase, quartz, and augite, with some titaniferous magnetite—in fact, an augite granite—representing the result of a later stage of consolidation, the more basic minerals having first been separated from the magma. This fact affords an instructive example of the influence of the order of crystallisation upon the composition of the magma, which tends to become more and more acid in character as consolidation proceeds. Near the margins the rock becomes more compact and inclines to be porphyritic.

Whinstone.—This term is commonly applied to many of the dyke rocks of the North of England and Scotland. We shall here select two well-known roadstones of this class for special description, viz., the Cleveland dyke and the whin sill. The rock of the Cleveland dyke is remarkably constant in composition throughout its length. It is an augite andesite, or an andesitic dolerite, its silica percentage being between 57 and 59, and its specific gravity 2·77. It has a porphyritic texture, tabular crystals of labradorite felspar being embedded in a matrix which is more or less crystalline as the dyke increases or diminishes in thickness. Near the margin it is much more compact, owing to a more rapid cooling. The ground mass contains lath-shaped plagioclase crystals, granules of augite, magnetite and brown granular interstitial matter. A little quartz is usually present. In many parts where decomposition has set in this rock effervesces freely with acid, owing to the formation of carbonates, and might therefore easily be mistaken for a limestone on a cursory examination.

The rock of the whin sill is a quartz diabase, approaching in its coarser varieties to a gabbro. It contains lath-shaped plagioclase felspars, and pale brown augite, sometimes ophitic. The iron oxide is probably an intimate intergrowth of magnetite and ilmenite. Apatite is sparingly present, and there is some accessory bronzite, which may represent olivine pseudomorphs. Brown mica occurs, and some brown hornblende often borders the augite. Quartz is present in the coarser varieties, often intergrown with the felspar into micro-pegmatite. Chlorite and pyrite are among its common alteration products. As already mentioned the more crystalline parts of this rock become almost holocrystalline, as in gabbro; but near its junction with sedimetary strata, where rapid cooling has taken place, it becomes finer in grain, and even microcrystalline, although its chemical composition remains remarkably constant.

That this rock really belongs to the basic group is seen from its low silica percentage, which is only 50, and its specific gravity of upwards of 2·9.

Gimblet Rock, Pwllheli.—This is a typical ophitic diabase, without olivine. It contains lath-shaped felspars, and pale augite in ophitic plates. The latter mineral is often fringed with hornblende. Iron ores and apatite are plentiful, but this rock possesses less decomposition product than is usually the case in the diabases. It is a rock of remarkably simple composition, well suited both by its structure and toughness to retain a rough and level surface under wear.

Clee Hills Basalt.—Both at Clee Hills and Rowley Regis we have a typical basic rock containing olivine. The Clee Hills stone is a columnar olivine dolerite, the olivine being usually in a remarkably fresh condition. The plagioclase felspar is also clear and free from kaolinisation. Augite is present in well crystallised forms, and there is also magnetite. It is a moderately fine grained rock of homogeneous texture, and from its toughness well suited for heavy traffic. The Rowley Regis stone is very similar to that of the Clee Hills, but the olivine, being more ferriferous, shows more sign of alteration into serpentine along the cleavage cracks. The augite is in clear brown grains, not ophitic, and there is a good deal of magnetite and apatite. Some more acid segregation veins occur, with orthoclase felspar, and a coarser grained variety has no olivine, and the felspar and augite are intergrown as in micropegmatite.

Table of Some Igneous Rocks used as Road-stone.

Principal Constituents marked ▬; Subordinate Constituents marked —.

Locality.	Petrographical Name.	Quartz.	Orthoclase.	Plagioclase.	Muscovite.	Biotite.	Hornblende.	Pyronene.	Olivine.	Magnetite.	Pyrite.	Apatite.	Remarks.
Penzance	Granite	▬	▬	—	▬	▬							Schorl present; sp. gr. 2·62.
Dartmoor	Granite	▬	▬	—	▬	▬							Coarse grain; sp. gr. 2·66.
Kemnay	Granite	▬	▬	—	▬	▬							Medium grain; sp. gr. 2·69.
Dalbeattie	Granite	▬	▬	—		▬							Schorl present.
Shap	Hornblendic Granite	▬	▬	—		▬	▬				—		Porphyritic; hornblende scarce.
Guernsey	Hornblendic Granite	▬	▬	▬		▬	▬				—	—	Hornblende plentiful.
Stony Stanton	Syenite	—	—	▬		—	▬						Micropegmatitic.
Enderby	Syenite Porphyry	—	—	▬		—	▬						Cryptocrystalline.
Markfield	Syenite	—	—	▬			▬			▬			Micropegmatitic.
Groby	Syenite	—	—	▬			▬			▬			Micropegmatitic.
Atherstone	Diorite	—	—	▬			▬	—		▬		—	Calcite present.
Brazil Wood	Diorite			▬			▬	—		▬			Calcite present.
Mount Sorrel	Hornblendic Granite	▬	▬	—		▬	▬			—	—	—	Epidote present; sp. gr., 2·66.
Quenast	Quartz Diorite			▬			▬						Porphyritic.
Yr Eiffl	Quartz Felsite	▬	▬	▬		▬				—		—	Chlorite present.
Threlkeld	Quartz Felsite	▬	▬	—		▬							Microcrystalline ground mass.
Cornish Elvan	Quartz Felsite	▬	▬			▬	—				—	—	Microcrystalline ground mass.
Bardon Hill	Felstone	▬	▬				▬						Hornblende decomposed.
Penmaenmawr	Quartz Diabase	▬	▬	▬		—		▬		—		—	Enstatite present; sp. gr. 2·94.
Whin Sill	Quartz Diabase	—	?	▬		—	—	▬		▬	—	—	Bronzite present; sp.gr. 2·9.
Pwllheli	Diabase			▬		—	—	▬		▬		—	Ophitic.
Cleveland Dyke	Augite Audesite	—		▬				▬		▬			Sp. gr. 2·7.
Clee Hills	Olivine Diabase			▬				▬	▬	▬			Sp. gr. 2·86.
Rowley Regis	Olivine Diabase			▬				▬	▬	▬			Sp. gr. 2·9.
Campsie Fell	Olivine Dolerite			▬		▬		▬	▬	▬		—	Porphyritic.
Newlyn	Epidiorite			▬		—	—			▬			Altered ophitic dolerite.
Ratho	Dolerite	—		▬				▬		▬		—	Altered augite.
Antrim	Basalt.			▬				▬	▬	▬			Often ophitic.

Many other basaltic rocks, with or without olivine, are used for road metal, especially in the Central Valley of Scotland, where all roadstones of this class pass under the general name of whinstone, such as is largely quarried at Ratho and Kilsyth.

The discussion of the igneous rocks is concluded with the following tabular view of the mineralogical features of the principal roadstones of this class, and a diagram is added intended to illustrate in a graphic manner some of the more important points of chemical difference between them. The vertical columns give the percentage composition of some typical roadstones, which are arranged in such a manner that the more acid varieties are on the left, and the more basic rocks on the right. A curve drawn through the dots shows at a glance the chief facts brought to light by chemical analysis.

In the first place the silica percentage varies between about 70 and 50; and as the proportion of silica decreases we find a corresponding increase in iron oxide, lime, soda, and magnesia. It is noticed, also, that both the alumina and the potash fall with the silica, although to a less extent. These facts are what will be deduced from the mineralogical variations before described.

Another point of importance with respect to chemical analysis is the amount of variability which may be expected to occur in various rocks. Silica, as we see from the diagram, is by far the most variable, and there is as much as 25 per cent. difference between the most acid and the most basic of the selected rocks. Iron oxide varies within nearly the same limits. Alumina and lime, however, only vary within about 8 per cent.; and soda, potash, and magnesia within 5 per cent. These considerations are of great importance, and further reference to them will be made in considering the question of road-stone tests.

Correspondence.

To the Editor of THE BUILDER.

"THE SO-CALLED COMACINE MASTERS."

SIR,—I have read with interest and attention, in your issue of July 8, your critic's review of "The Cathedral Builders." From his point of view I quite understand his not at once accepting the Comacine Masters as an integral part of the development of art. I should, perhaps, have referred to them under the wider known appellation of architects of the Lombard style.

There are one or two points, however, which I should like to place before your readers. 1. As to the "Opera," such as the "Opera del Duomo" at Florence, Siena, &c. The reviewer claims this as "a branch of the municipal government of a city, an office of works, which superintended all civic building operations and regulated expenditure." That is a fair account of *part* of its functions, but not by any means a complete one. If this "opera" formed an integral part of the municipal government, how would the following facts be explained:—

1. That only a few cities have any remains of an "opera," and those are always the cities where there was a large congregation of those sculptor-architects who are distinguished in all contemporary documents as *magistri*, and that it was their place of assembly.

2. That when this congregation of masters which I, for want of a better word, have called a masonic lodge, broke up or removed its headquarters from that city, the "opera" was closed, and fell into disuse. In Florence, for instance, Donatello was a master in the school of sculpture under the roof of the "opera," and he had succeeded other masters Yet, when Michelangelo was a youth, we are told by his biographers that there was in Florence no plac in which students of sculpture could be taught, till the Medici lent their garden, and Bertoldo, Donatello's pupil, was placed as master. Now, the "opera" building was still standing, and, if it were exclusively a municipal office, it would have been still open to its former uses. I account for the statement by the fact that the "opera" (or masonic meeting place and schools) had been closed when the lodge broke up and its members dispersed after the Brunellesco episode.

3. That the old writers who minutely describe the councils and government of Florence, make no mention of the "opera" as an integral part of that government.

4. That in all cities which preserve the archives of the "opera," we find it managed in precisely the same way, its council of administration fairly composed partly of the architects themselves, and partly of the ruling powers of the city; its workshops and schools always under the same roof as its assembly rooms. And this under many differing rules, such as Papal supremacy at Rome, Republican freedom in Florence, the Lombard municipalities, the rule of the Doges in Venice, &c.

Another point which I should like to notice is that of the Italian municipal trade guilds which the reviewer curiously refers to as Teutonic, and confuses with this much older masonic guild. They are

different both in scope and organisation. The craft or trade guilds did not begin in Italy till the communes were formed in the twelfth and thirteenth centuries, and then their higher members were called "consuls" of the art; not "magistri" or "maestri." That term had then so long been used for master architects that it had become distinctive, was so exclusively theirs that it stood alone—they were *the maestri*, and the cities which employed them wrote to some established lodge to send them maestri, they did not need to qualify the kind of master as they would if it were a schoolmaster, "magister scholarum." See Villani (lib. I., cap. xlii.). "E mandarono (the Florentines) al Senato di Roma che mandassi loro i piu sofficienti maestri, e piu sottile che fossero in Roma e cosi fu fatto." This was in Roman times. The same expression is used by Villani in regard to the "masters" whom Charlemagne sent to rebuild the walls of Florence in the ninth century. Villani (lib. III., cap. i.). The reviewer seems to draw the inference that as there was no craft guild in Florence which represented the architect, sculptor, or painter, no such guild existed. I think differently. Taking this very singular hiatus together with the fact that, during the days of the Republic, Florentine architecture and art were such dominant influences that their mark is left on all succeeding ages, we can only explain it by the monopoly of the masonic company which caused local art-guilds to be superfluous. It was, be it remembered, only after the secession of the painters from it that they had to secure civil rights by entering other guilds, such as goldsmiths and apothecaries.

The reviewer speaks of the masonic guild as "a purely lay combination." Surely I have not so described it! The intimate connexion with ecclesiastics is shown in every epoch. The fraternity of architect monks who were called into council with the maestri, the constant supervision of churchly patrons, from the earliest inscriptions in which popes or bishops are written as *Fubenti* (overseers), to the later popes under whom the Lombard masters built the Vatican all speak for themselves.

I have only thrown a faint and uncertain glimmer of light on a subject which future searchers among Italian archives may more fully reveal.

LEADER SCOTT.

Florence, July 12, 1899.

CROXTETH GUARDIANS *V.* ELLISON.

SIR,—Col. Ellison is reported in this case to have said, "It was simply impossible to take out quantities mathematically accurately from the plans."

Surely this statement should not be allowed to go unchallenged. If the plans are mathematically correct, it is easier to make the quantities mathematically correct than to make them mathematically incorrect; and if Col. Ellison had prepared the quantities himself, instead of leaving such important work to clerks, I do not think he would have used the expression.

The fear of extras being found out may induce architects' clerks or inexperienced surveyors to "take plenty" in their quantities, as in that case they are not often found out, but no quantity surveyor of experience would admit that quantities cannot be taken out mathematically correct.

W. HOFFMAN WOOD.

OREGON PINE.

SIR,—Your correspondent, D. H. G., wishes to know why Oregon pine is not used in London for joinery. I append a few reasons which may be of service:—

1. Oregon pine being of comparatively recent introduction, is not generally known amongst architects.

2. It is much dearer than any of the fir variety, being a kind of pitch pine, but it does not shrink any more than the latter.

3. It cannot be worked to a very smooth surface, on account of the very sticky nature of the resin, and is more useful for open timber roofs, &c., where smoothness is not so essential.

JAS. W. FARMER.

SIR,—One objection to Oregon pine is the labour of bringing it to a good face, owing to its stringy character.

J. M.

OBITUARY.

MR. D. STEWART.—The death is announced of Mr. Douglas Stewart, architect, of Bournemouth. The deceased was in his forty-seventh year.

PUMPING STATION, ANCOATS, MANCHESTER.—A new pumping station which has been erected in Pott-street, Ancoats, in connexion with the Manchester Corporation Hydraulic Power Supply, was opened on the 6th inst. The plans for the building were prepared by Mr. J. W. Beaumont, of Manchester, and the designs of the machinery and ironwork by Mr. L. Holme Lewis, the engineer and manager.

HOTEL METROPOLE, LEEDS.—In reference to the description of this building in our last issue, Messrs. Archibald Smith and Stevens ask us to mention that the passenger lift in the hotel was erected by them.

GENERAL BUILDING NEWS.

ST. JUDE'S CHURCH, SOUTHWARK.—This church, which was consecrated last week, has been erected on the site of a poor building erected early in the century. The peculiarities and difficulties of the site have led to the adoption of a somewhat unusual treatment. The site being short, the nave and chancel have been kept the same width, and the roof has been carried through at the same height, without any chancel arch, so as to emphasise the length as much as possible. The aisle next the road has been kept very narrow, being only 11 ft. 6 in. wide, so as to bring the clearstory well to the front. The other aisle is 21 ft. wide (the nave being 23 ft.), in order to get in the necessary accommodation. This arrangement enables the pulpit to be placed nearly in the centre of the church. The church appears somewhat high for its present length, but it is intended to extend it westward, the present blank west wall being only temporary. The nave and aisles are supported by clustered columns carrying arches of moulded red brick, with a clearstory over of single light windows with cusped heads. The roofs are ceiled to the underside of the rafters with pitch pine principals, stained dark, and are panelled with pitch pine ribs. The exterior is faced with red bricks from Thos. Lawrence & Sons, Bracknell; the interior partly with red and partly with Barham bricks. The stone is from the Bath stone firms, Monk's Park, coated with "fluate," outside, and Corsham Down inside. The flooring is of pitch pine blocks by Messrs. Geary, Walker, & Co., who also did the mosaic in the chancel. The gas-fitting is by Messrs. Vaughan & Brown. The heating is by hot water, by Messrs. Jones & Sons, and the stone carving was done by Mr. Mabey. The builder was Mr. John N. Fry, and the architect Mr. W. J. H. Leverton. The accommodation is for not quite 500, and the total cost was a little over 4,000*l.*

NEW CHURCH FOR ST. JUDE'S PARISH, HANLEY.—The new church for St. Jude's parish, Hanley, which is situate almost opposite the present church, and has frontages to Victoria-road, Beresford-street, and Seaford-street, will cost 7,000*l.* and accommodate 800 worshippers. The church will consist of a nave, with aisles on either side, a chancel, with organ chamber and priest's vestry on the north side and a wing chapel on the south side. The nave will be 80 ft. long, 30 ft. wide, and 35 ft. high to eaves and 53 ft. to the ridge. It will be separated from the aisles by five arches on either side, of stone and brick, springing from stone piers. At the west end of the south aisle will be the baptistry. The building will be of red bricks, with stone dressings to the windows and doors. The roof will be covered with tiles, and the length of the ridge will be broken by a small spire containing an exhaust ventilator at the junction of the nave and chancel. Messrs. Scrivener & Sons are the architects.

CATHOLIC CHURCH, COATBRIDGE, LANARKSHIRE.—The Church of St. Augustine's, Coatbridge, has just been completed. It is Early Decorated in style, and consists of nave and aisle chancel, with chapels on either side, separated from the chancel by arches. There is a three-light window in each bay of the aisle on the north side, and recesses for confessionals are placed in the south aisle; also baptistry, which is finished with an apsidal end. The west gable is pierced with a large rose window. The gallery for the choir and organ is placed in a transept off the south aisle, as there is no gallery at the west end. The chancel, which is divided from the nave by an arch rising to a height of 40 ft., is apsidal in form, and pierced in the centre bay by a two-light window. In the chapel, on the Gospel side, there is a traceried rose window, and in that of the Epistle side a two-light window. In the latter chapel is placed the Tribune, which is connected with the Presbytery. The internal length of the church is 128 ft., width 60 ft., and height 60 ft. The building is designed to accommodate about 1,000 persons, at a cost of 10,000*l.* Redstone has been used for the exterior, while the interior is of Prudham stone. The seats and internal fittings are of oak. The whole has been designed by Messrs. Pugin & Pugin, of London. Mr. Marshall has acted as inspector of works.

FREE CHURCH, TURRIFF, ABERDEEN. — The memorial stone of the new Free Church at Turriff was laid on the 11th inst. The church is of the Early English style, designed by Messrs. D. & J. R. Macmillan, architects, Aberdeen.

WESLEYAN CHAPEL, NEW HINDLEY, WIGAN.—The memorial stones have just been laid of this building. The new church, plans for which were prepared by Messrs. W. Waddington & Son, of Manchester, and the building of which has been entrusted to Messrs. Preston & Hirst, builders and contractors, of Wigan, is being erected at a cost of 6,000*l.*

NEW SCHOOL FOR LERWICK, N.B.—At a meeting of Lerwick School Board recently, plans were approved of a new school proposed to be built to accommodate the whole of the standards from I. to VI. The plans, which have been prepared by Mr. Wilson, Architect to the Edinburgh School Board, provide class-rooms to suit the requirements of the new Code, together with accommodation for cookery, drill, board-room, &c. The estimated cost is 7,000*l.*

HOMES OF REST, BANGOR.—Two new homes of rest for men and lads, and for mothers and children, were opened at Bangor on the 8th inst. They have been erected adjacent to each other, close to Strickland's Glen. The home for men and lads has cost about 1,900*l.* Entering on the main vestibule, there is an octagonal hall leading to the main departments. On the right of the building are cloak-rooms, superintendent's office, and a large dining-room. The servery leads from the dining-room to the kitchen and domestic offices. On the opposite wing of the central hall there is a corresponding apartment for the general sitting-room. The upper floors are fitted up with bedrooms. Bath-room and lavatory accommodation has been provided on each floor. The design for the home of rest for mothers and children is based on a similar plan, but to a somewhat larger scale, the main sitting-room and dining-room being each about 35 ft. long by 17 ft. wide, and with large bays. A special feature of this building is a large upper verandah around bedrooms. Mr. J. Kidd was the builder and Mr. W. J. W. Roome was the architect.

INSTITUTE, BISHOP'S WALTHAM, HANTS. — The institute at Bishop's Waltham was opened recently. The building has been erected from the designs of Messrs. Cancellor & Hill, architects, of Winchester. It has cost 2,300*l.*, and the accommodation comprises on the ground floor a lecture-room, 48 ft. by 22 ft., which can be divided by a partition into two class-rooms. The entrance is from Bank-street, and on the left-hand side of the entrance hall is a room, 36 ft. by 22 ft., for laundry and cookery classes. Opening out of this room is a scullery, to be used in connexion with the cookery classes, and there are also two bath-rooms on the ground floor, and an ante-room to the lecture-room. The caretaker's quarters are at the back, whilst upstairs there is a recreation room and a reading-room, each 22 ft. by 18 ft., besides the caretaker's rooms. The building is of brick, relieved by Messrs. Poulton's moulded bricks.

HOTEL, MUNDESLEY, NORFOLK.—A new hotel (The Manor House) has just been opened at Mundesley. It has been erected by Messrs. S. Chapman & Son, Mr. J. B. Pearce, of Norwich, being the architect.

GLASGOW INTERNATIONAL EXHIBITION, 1891.—The *Glasgow Herald* gives some particulars in a recent issue of the concert palace or music-hall to be erected in the square in front of Kelvingrove Museum. The building is circular in plan, and measures 143 ft. in width by 162 ft. from the back of gallery to the organ case. An effect will be obtained by the arcade of semi-circular arches supported on columns which surrounds the building, with the exception of the portion occupied by the orchestra and chorus. A feature in connexion with the plan is that the orchestra and chorus are not recessed in any way, but accommodation is provided for them in a staged gallery, the whole of which falls within the circular line of the building. At the main entrances are two reception-rooms. In connexion with the stage are two retiring-rooms, with lavatory and dressing-room accommodation for the use of the chorus and orchestra. Access to the gallery is obtained by four staircases which communicate on the ground floor with a corridor 10 ft. wide, which surrounds three-fourths of the building. The auditorium is entered from this corridor, doors being placed at frequent intervals. The staircases, although communicating with this corridor, are provided with separate exits to prevent crushing The auditorium will accommodate 2,500 persons, and the gallery 1,500, so that the total seating accommodation is 4,000. The platform is arranged to seat an orchestra of 100 performers and a chorus of 400 persons. A grand organ will occupy the centre space over the platform, and is kept back in such a manner as not to separate or break up the chorus in any way. The construction of the hall is intended to be of steel framework, covered with fibrous plaster slabs. The umbrella-shaped roof rises to the height of 70 ft. at the centre, and will be partly glazed; the large cupola on the top acts as a ventilator. It is proposed to heat the building by means of hot water. The hall is isolated from the main buildings. It has been suggested to the Building Committee that if this building were constructed in a permanent manner, the Town Council might decide to take it over at the close of the Exhibition, and retain it as a concert hall or winter garden. The architect is Mr. James Miller.

LEEDS BLIND AND DEAF CHILDREN.—A NEW HOME AND SCHOOL.—A new Home and School for Blind and Deaf Children, in Blenheim-walk, Leeds, has just been opened. The building is three stories in height, faced with pressed bricks with sandstone dressings, the central entrance being of Morley stone. Each department is separate and distinct for teaching purposes, and easy of approach to the domestic department. Five staircases from the ground floor lead to the separate departments, and in addition there are exit corridors and a staircase from each department to the playgrounds. Accommodation is provided for 108 boarders (59 blind and 49 deaf children), and 100 day scholars (30 blind and 70 deaf); and the blind children are all to be taught on the ground floor, and the deaf children on the floor above. The central entrance and staircase divide the educational part of the building from the domestic part. To the right is the blind assembly hall, 59 ft. by 29 ft., with seven class-rooms, each 20 ft. by 15 ft., a workroom about the same size, and four music rooms. To the left is a

waiting-room, superintendent and matron's room, committee room, and dining hall, with cooking kitchen, scullery, pantries, servants' kitchen, &c. The first floor is very similar in arrangement, and has an assembly hall, eight class-rooms, a sewing-room 26 ft. by 20 ft., blind boys' dormitory, bath-rooms, and lavatories. The whole of the second floor is set apart for boarders and staff. All the staircases are of stone, and the main corridors and the floors over the boiler-house, landings, and apparatus-rooms are fireproof. There is a complete installation of electricity. A special feature is the arrangement for heating and ventilating, which has been carried out by Mr. Key, of Glasgow, on the Plenum system. The plans were drawn by Mr. W. S. Braithwaite, and the brick, stone, and joiner's work was carried out by Mr. J. H. Wood. The total expenditure has been close upon 30,000*l.*

PUBLIC LAVATORIES, MARGATE.—New underground lavatories have been formed on the sea front, opposite the Jubilee Clock Tower, the work having been carried out by Messrs. E. Padget & Sons, of Margate, from the designs of Mr. Frank Latham. The cost has been about 2,000*l.* The fittings were supplied by Mr. George Jennings.

MASONIC HALL, ST. BUDEAUX, CORNWALL.—On the 8th inst. memorial stones were laid in connexion with the Queen Victoria Masonic Hall, St. Budeaux. It will be a one-story erection. the front of which will be of dressed limestone. The retiring-room will be in the front, and the large room immediately behind. The architect is Mr. J. H. Nunn, of Plymouth. Mr. J. E. Carter is the builder.

POLICE-COURT, PORT TALBOT.—The new police-court for the Aberavon Petty Sessional Division at Port Talbot, erected at a cost of 4,000*l.*, was opened on the 10th inst. The new buildings have a frontage to the main road of 100 ft. and a depth of 77 ft., and are situated on the north side of the road leading from Taibach to Aberavon. They contain, in addition to the court-room, a magistrates' room, witnesses' room, charge-room, four cells, men's day-room, together with inspector's house and four dormitories for the men, approached by a separate staircase. The contractors are Messrs. Bennett Bros., of Swansea. The cells, corridors, court-room, &c., are warmed by means of hot water with radiators, &c., supplied and fixed by Mr. J. Lane, of Bridgend. The clerk of works was Mr. Howell Prosser. The buildings were designed and superintended for Mr. T. Lloyd Edwards, the County Surveyor, by his son, Mr. Arthur J. Edwards.

SANITARY AND ENGINEERING NEWS.

CASTLE EDEN COLLIERY WATER SUPPLY.—This scheme, now carried out by the Easington Rural District Council, comprises the supplying of the village of Castle Eden Colliery with water by meter from the Wingate and District Water Company whose main is situated in Salter's-lane, Wingate, at the west end of the occupation road leading to Wellfield House Farm. The source of the supply is from Wingate Grange Colliery, the water being pumped from the limestone formation overlying the coal measures (and therefore somewhat hard but wholesome), to the reservoir situate on Pickering Hill at an altitude of 477 ft. above ordnance datum. From the point of connexion with the existing main the water is conveyed in cast-iron pipes along the road to a meter house, and thence through fields to Wellfield Station by Catchgate, Messrs. Nimmo's brewery, Parklands, Castle Eden old village, to a point 700 yds. east of the latter, where the pipes are laid in Occupation-road to Southfield House and thence to a point on the west side of Castle Eden Colliery village, a total distance of over three miles. The water is distributed through the village by means of spigotted and socketed cast-iron pipes, varying from 4 in. to 2 in. diameter, coated with Dr. Angus Smith's solution, tested to 500 ft. head of water as a proof head at the foundry of the Birtley Iron Company, also with the working pressure in trench before being covered, thereby minimising chance of leakage. The jointing is of yarn and lead, and in all cases the pipes have sufficient cover to prevent freezing. Stop, scour, and air valves and hydrants are provided, so that the mains are under proper control. The route of the mains is partly along roads public and private and through fields, and there is a good minimum pressure available for the supply of fully 100 ft. There are self-closing, anti-freezing pillar wells, made by the Glenfield Company, Kilmarnock, placed over the village, and so as not to be 200 ft. from any house, the statutory maximum distance prescribed by the Public Health Water Act, 1878. The engineers are Messrs. D. Balfour & Son, civil engineers, Newcastle-on-Tyne; the contractor, Mr. Thos. Bell, of Market Weighton, Yorkshire; the resident engineer, Mr. G. H. Humble. The valuable supply now available will supersede the existing limited and irregular supply by water-carts from various local questionable sources.

MERSEY DOCK EXTENSION.—At the meeting of the Mersey Docks and Harbour Board recently the Works Committee recommended the construction by contract of an additional branch dock on the east side of the Canada Dock, immediately north of the great new graving dock. In conformity with standing orders, the matter was deferred for a week. In submitting the project to the Board, Mr. Hughes read some figures from the chief accountant's memorandum, which he said showed the extraordinary increase in the tonnage of the port. The new dock had been designed with a view to quick construction, and it was intended to provide double-story three-span sheds of cheap design so as to be quickly brought into use. Mr. Glynn said if they could quadruple their accommodation they would still find more work than the docks could do. By expedition they might finish this branch dock in about two years, and then about twenty firms would want it.

REFUSE DESTRUCTOR, CHESTERFIELD.—The Town Council having applied to the Local Government Board for sanction to borrow 1,600*l.* for the erection of a refuse destructor on the Corporation sewage farm, at Newbold, Mr. Charles Perrin, a Local Government Board Inspector, held an inquiry at the Municipal Hall on the 11th inst. Among those present was Mr. Watson, representing the Horsfall Furnace Syndicate, Limited, which is in treaty to supply the destructor.

FOREIGN.

FRANCE.—Mdme. Beulé, widow of the late member of the Institut, has left to the Académie des Beaux-Arts a sum of money to found an annual prize to be given to the author of the best "dernier envoi" from the Villa Medici—that is, we presume the best work by a student who is finishing his course. The prize, however, is limited to painters, sculptors, and musicians; why architects are left out is not apparent.——Three large hospitals in Paris, those of La Pitié, Cochin, and Aubervilliers, are shortly to be rebuilt.—M. Jean Cabrit, the painter, has been appointed curator of the Bourdeaux Museum. —— The jury of the competition opened at Aix-en-Provence for the building of a hospital, has awarded the first premium to M. L. Muller; the second to MM. Cravis and Pacaut; and the third to M. Huot. All are of Marseilles, the last-named being hospital architect to the Marseilles Corporation.——The municipality of Angers are undertaking some large public improvements which will cost altogether nearly 4,300,000 francs. The scheme includes the clearing of the space around the church of Notre Dame, the enlargement of the Hôtel de Ville, and the enlargement of the Jardin des Plantes.——The town of Toulouse is about to spend about 7,000,000 francs on new buildings and street improvements, including the construction of a bridge over the Garonne and of another over the Canal du Midi; an aqueduct over the Canal de Brieuve; the completion of the Place Matabiau; and the installation of a higher grade school in the Hôtel Saint Jean.——M. Edouard Bérard, the architect, has been commissioned to prepare a scheme for the enlargement of the religious establishment at Lourdes. According to the proposed scheme, the new church will receive the addition of a large open cupola carried on twelve figures of angels. All this part of the work is to be in hammered and gilt copper, the effect to be further heightened by the addition of studs of many-coloured glass, which will be rendered luminous at night.——The death is announced, at the age of seventy, of M. Jean Achille Legros, architect and member of the Société, and a former pupil of Henri Labrouste. He had latterly devoted himself entirely to the building of large mansions for letting. He was however architect for some public buildings, notably the groups of schools at Vincennes and Levallois-Perret. He was one of the founders of the Caisse de Defense Mutuelle des Architectes. ——Dalou's celebrated colossal group, "Le Triomphe de la Republique," more than once illustrated in our pages, is to be inaugurated on the Place de la Nation on September 22. It has been eighteen years in progress, having been commenced in 1881.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Mr. Herbert T. Buckland, architect, Queen's College, Paradise-street, Birmingham, has taken into partnership Mr. E. Haywood-Farmer, of Northampton. ——As notified by an advertisement in our present issue, the works and plant of the Thames Ironworks and Shipbuilding Company, together with the engineering works of Messrs. J. Penn & Sons, have been conjointly purchased by the "Thames Ironworks, Shipbuilding and Engineering Company," a company formed for the purpose of taking over the business of these two companies and carrying on shipbuilding and large forging work in iron and steel. Mr. Arnold F. Hills is the Chairman.

THE IRISH CHANNEL TUNNEL SCHEME.—The *Engineer* of the 14th inst., after giving some reasons for doubting the extent of shortening of the journey between London and Belfast, which could be achieved by the proposed Irish Channel Tunnel if made, sums up with the following criticism on the prospects of the project:—"We have as yet said nothing about the possibility of making the tunnel. Lord Charles Beresford has been credited with saying that so long as money enough was forthcoming engineers could do anything. We fear that he has formed rather an exaggerated estimate of our powers. We are quite unable, at all events, to say whether the proposed tunnel could or could not be made, simply because no positive information on a most important point is available. No one knows what faults exist in the bottom of the Channel. It is proposed that the railway shall pass 150 ft. below the sea bottom. No borings have been made in mid-channel. The whole region manifests signs of violent volcanic action. The construction of the tunnel would be commenced absolutely in the dark as to the condition of the strata to be passed through; how far it is fissured, how far saturated, no one has any accurate information. We take it for granted that Lord Londonderry, Mr. Barton, Lord Charles Beresford, and others associated with them, are quite serious. But if they are, why did they not come to Mr. Balfour prepared with some information? They might have had at least a few statistics of value as to the probable traffic. If the deputation came determined to disarm criticism by reason of the exceeding paucity of information supplied, they have no doubt succeeded; but, on the other hand, they have also succeeded in reducing their proposals to the well-known category of wild-cat schemes; of which, indeed, this really seems to be one of the finest and wildest." We think the words of our engineering contemporary are the words of wisdom.

THE SANITARY INSTITUTE.—At an examination in Practical Sanitary Science, held at Cardiff on July 7 and 8, 1899, a certificate was granted to David Pugh-Jones, Grongar House, Llandaff.

BRITISH INSTITUTE OF CERTIFIED CARPENTERS.—Owing to the death of the President of this Institute, Professor Banister Fletcher, the annual dinner announced for the 8th inst., was postponed.

PENICUICK.—This mansion, standing on the Esk, which was nearly consumed by fire last month, was originally built in 1760-1 by Sir James Clerk, after his own designs, in the Classic style, with a portico of eight Ionic columns 20 ft. high. The great drawing-room, 37 ft. by 25 ft., known as "Ossian's Hall," was built by John Baxter and James Blackie, master carpenter. It was painted with scenes from Ossian's poems, and with allegorical figures of the rivers Tay, Clyde, Spey, and Tweed, by Alexander Runciman (1736-85), who on his return from Rome settled in Edinburgh in 1771. Runciman, the son of a builder, also painted the cupola above the staircase with four episodes in the life of Queen Margaret of Scotland, which were highly extolled by his contemporaries. David Bryce added two wings to the house about sixty years ago. The collection of pictures included examples of Holbein, Matsys, Kneller, Jameson, Rubens, Teniers, Jean Van Eyck, and other famous painters, together with drawings by Vandyke, Guido, and Raffaelle; the damage wrought by the fire is computed to exceed 35,000*l.*

PLUMBERS' EAXMINATION AT KING'S COLLEGE.—Twenty-four master and operative plumbers applying for registration under the National Registration of Plumbers attended at King's College last week for examination by the Worshipful Company of Plumbers. The candidates were from various parts of London and also from Grantham, Guildford, Harpenden, Leatherhead, Littlestone-on-Sea, Redhill, Sidcup, and Windsor. The practical tests included lead bossing, pipe bending, and joint making, and the examination questions included the subjects of roof covering, contamination of drinking water from faulty connexions, arrangement of bath, sink, and closet wastes, drainage of town houses, and disconnexion with sewers. The examiners were:—Mr. Charles Hudson, Chairman of the Board of Examiners, Mr. F. Nichols, master plumber, Mr. C. Thomerson, representing the London Society of Associated Master Plumbers; and Messrs. F. Randall, G. W. Stacey, and G. Watts, representing the United Operative Plumbers' Association of Great Britain and Ireland. Seven candidates succeeded in passing the practical examination.

PETERBOROUGH CATHEDRAL.—On the 14th inst. at the summit of the west front of Peterborough Cathedral, the huge cross on the southern gable was replaced in position.

WOOD-BLOCK FLOORS.—Messrs. Mark Fawcett & Co. send us a sample of their maple wood-flooring blocks, to be laid herring-bone wise, which are slit at one end, the slit going about three-quarters through the thickness, to take a long flat steel binding slip which runs through a number of blocks at the point where they meet at a diagonal, binding the whole together. Their floors have been laid on this method at the Natural History Museum, Euston Post Office, and elsewhere. On the other hand, Messrs. B. Ward send us a description and a model of their "Self-keyed Wood-block Floors," the boast of which is that they require no dowels of any kind, but are shaped with concave and convex edges so as to form their own key. This would save expense and trouble in laying, but where there is very hard wear we should consider that special dowelling was necessary.

APPOINTMENT OF SANITARY INSPECTORS.—The Local Government Board has sanctioned the appointment of Messrs. H. S. West and J. Landen as Sanitary Inspectors in St. Pancras.

CAPITAL AND LABOUR.

THE TYNESIDE JOINERS' STRIKE.—On June 10 some 700 joiners employed in the building trade on the Tyne and at Blyth struck for an advance in wages from 9½d. to 10d. per hour. The men who came out were those employed by the members of the local branch of the National Association of Master Builders, the non-federated employers having conceded the increase. For over a month the masters held firm, and something like 2,000*l.* has been paid in dispute pay by the Tyne District United Trade Committee of Carpenters and Joiners. On the 14th inst., however, the Associated Masters met in the Building Trades' Exchange, Art Club, Grainger-street, Newcastle, and agreed, after a prolonged discussion, to concede the advance.

JOINERS' WAGES IN NORTH-WEST DURHAM.—The joiners employed in the Consett district have made a demand for an increase of from 8½d. to 9½d. per hour, while the joiners at Stanley and Annfield Plain asked for an advance of from 8½d. to 9d. The employers in both districts have agreed to give an additional ½d. an hour, and the joiners in the Consett district have accepted the advance conditionally that if the joiners in Newcastle secure the 9½d. an hour it will be conceded in the Consett district. The masters, however, have determined to resist this demand.

MANCHESTER PLASTERERS.—A meeting of master plasterers was held on the 17th inst. at the Grand Hotel, Manchester, to discuss the present position and prospects of the dispute which has now existed for some eighteen weeks in the building trade. It will be remembered that at the National Conference, held in London, it was understood that, upon a certain rearrangement of the rule, the men were to return to work. The operatives, however, afterwards said that no official notice of the stoppage of the lock-out had been given to them. A conference subsequently took place between a number of the operatives and the masters, and an agreement was practically arrived at, but the men turned round and said that they could not return to work unless they received an advance of a penny per hour. The masters could not see their way to grant the increase, and the dispute has dragged its slow length along from that time to the present. It is understood that a joint conference of masters and operatives will be held next week. The labourers, with whom the masters have no dispute, and who were only discharged because there was no work for them to do, have given notice that they will not return to work unless they obtain an advance of ½d. per hour. The feeling was expressed at the meeting on the 17th inst. that it was desirable that an arrangement should be made, if possible, similar to that adopted by the bricklayers in Yorkshire, viz., that the men should return to their old places, and that six months' notice should be given of the desired changes. One fact which gave rise to expressions of regret is that masters who do not belong to the Federation are employing men who are locked out, or are endeavouring to get hold of them, and the men are working for them at a penny less per hour than they have hitherto received. In reality a few Manchester masters, comparatively, are "fighting the battle of some 200 or 300 employers in the city and district." Further action will be taken shortly, we understand, unless the operatives show themselves more disposed to settle the dispute amicably than they seem to have been hitherto.—*Manchester Courier.*

LEGAL.

ALLEGED THREATENED INFRINGEMENT OF ANCIENT LIGHTS AT WHITECHAPEL.

THE case of Brown *v.* Morris & Son, Limited, came before Mr. Justice Kekewich in the Chancery Division on the 13th and 14th insts., it being an action brought by Messrs. George Brown & Sons, of No. 9, Half Moon-passage, Whitechapel, wholesale provision merchants, against Messrs. B. Morris & Sons, Limited, of Half Moon-passage, Whitechapel, cigar merchants, for an injunction to restrain the alleged apprehended infringement of ancient lights. There was also a claim for damages.

The defendants alleged that their buildings had been so designed as to avoid the infringement of the plaintiffs' rights.

Mr. Renshaw, Q.C., and Mr. Rylands appeared for the plaintiffs; and Mr. Warrington, Q.C., and Mr. Stewart Smith for the defendants.

It appeared from counsel's opening statement that Messrs. Brown & Sons had with their predecessors, Messrs. George Larkin & Son, occupied their premises, Imperial House, Half Moon-passage, Whitechapel, since the year 1889, and they applied for an injunction to prevent the defendants from rebuilding their premises by raising the roof of their present premises some 14 ft. higher than it now stood, which would, it was asserted, obstruct the access of light and air coming to the windows of Messrs. Brown's premises on the south side, and which immediately adjoined the defendants' premises. At the present time Messrs. Morris's premises were in some places only 7 ft. away from Messrs. Brown's premises, and counsel pointed out from a large model prepared for the plaintiffs by Professor Banister Fletcher & Sons and Professor Roger Smith, the plaintiffs' architects, that the light coming to Messrs. Brown's premises would be most materially diminished if the defendants were permitted to erect their building. Messrs. Brown had also joined as plaintiffs their undertenants, Messrs. Pound & Co., of 81 to 84, Leadenhall-street, trunk makers, who occupied part of Messrs. Brown's premises in Half Moon-passage.

Mr. George Willoughby Brown, a partner in the plaintiff firm, examined, said that the defendants formerly occupied rooms on their (plaintiffs') premises. As soon as their tenancy expired defendants intimated that it was their intention to erect the building in question on land which they owned in close proximity to plaintiffs' premises. Defendants were warned that they must be careful not to infringe plaintiffs' light. The plaintiffs then applied for plans of the proposed building, and after getting them Professor Banister Fletcher made a report upon them. Although the defendants had not yet commenced their proposed building they had threatened to commence it and had in fact erected scaffolding adjacent to plaintiffs' premises. The business his firm carried on on the ground floors was that of provision merchants, and Messrs. Pound & Co., who were trunk makers, carried on business in the upper floors. Hitherto, all the floors above the warehouse had been sufficiently lighted.

Mr. John Lulham Pound, of the firm of John Pound & Co., also gave evidence to the effect that the light hitherto coming to their workroom was an ordinary good light, and sufficient for the purposes of their workpeople. If the defendants raised their roof another 13 ft. or 14 ft. it would affect their windows on the first and second floors.

Cross-examined by Mr. Warrington: He had not been told that the defendants proposed to set back the ridge of the roof 30 ft. from their premises. His firm used the rooms on the first floor principally for storage purposes. During the winter time some of the windows on the first floor might have been blocked up altogether by trunks being placed against them. That was, however, owing to special circumstances.

Mr. Herbert Fletcher, architect and surveyor, practising in New Bridge-street, Ludgate-circus, E.C., gave evidence as to being instructed on behalf of the plaintiffs to examine the plans of the defendants' proposed building and to report on the probable effect on the plaintiffs' light. Before the defendants erected the scaffolding he thought that the light coming to the office of the plaintiffs was fairly adequate. He thought that the defendants' proposed building would seriously affect the light of the plaintiffs' premises.

Professor Roger Smith also gave evidence in support of the plaintiffs' case.

In the result the action was referred to Professor Roger Smith and Mr. H. Currey to report as to whether a building erected in accordance with the plans supplied would to any material extent injure or interfere with the plaintiffs' lights, and whether there ought to be any modification in the plans. It was arranged that if the referees could not agree on any particular point they should be at liberty to call in a third party to decide the point in difference. On these terms the hearing of the action was adjourned until the report in question was made, with liberty to either party to apply.

DAMAGES FOR INFRINGEMENT OF ANCIENT LIGHTS AT KINGSTON:

ACTION AGAINST A BUILDER.

THE case of Leach Brothers *v.* Rowe came before Mr. Justice North in the Chancery Division, on the 13th and 14th insts., on action by the plaintiffs, a firm of grocers, to recover damages from the defendant, who is a builder carrying on business at Lansdown Works, Clapham-road, for interference with the plaintiffs' ancient lights at the rear of their premises in the Market Place, Kingston. The second plaintiffs in the action were Messrs. Walters & Rice, the owners of the freehold of Messrs. Leach Brothers' shop, while Mr. Nye, who was the person primarily responsible for the building which was alleged to have damaged the plaintiffs, and Mr. Combe, the freeholder of the premises, were both joined as defendants with Mr. Rowe.

Mr. Macnaghten, Q.C., Mr. Walters, and Mr. G. A. Scott appeared for the plaintiffs, and Mr. Swinfen Eady, Q.C., and Mr. Wilkinson for the defendants.

Mr. Macnaghten, in opening the case, said that he apprehended that the only question was whether there had been infringement or not. He had evidence that the lights in question were ancient, but he did not think that that fact would be contested. The defendants were three in number—Mr. Rowe, who was the builder who did the work, was originally the sole defendant in the action; Nye, the second defendant, was the lessee of "The Criterion" public-house, the rebuilding of which was the cause of the present action; the third defendant, Combe, being the freeholder. The work in respect of which the complaint arose was commenced in March, 1898, when the old "Criterion" public-house was pulled down and rebuilt. The work was now completed, and it might be a question whether the plaintiffs were entitled to an injunction, or whether his lordship would be of opinion that the case would be met by damages. Mr. Nye said that he had since parted with his interest in the premises.

His Lordship: If he has, and somebody else has got the property, it is difficult to grant an injunction compelling him to pull it down.

Mr. Macnaghten agreed, and said he would confine the question to one of damages. The learned counsel went on to say that plaintiffs' premises consisted of two houses thrown into one for the purpose of their trade. At the rear of the premises was a scullery, in the roof of which was a skylight which not only lighted the scullery but also a store-room, which had no independent light of its own, and the main staircase, which had no outward light. Then there was a kitchen window which looked out into a small well or kind of area. On the first floor there was a window lighting the passage and staircase, and another lighting a bed-room. On the second floor there was a store-room and passage landing which had a large window. All these lights had been affected detrimentally by the rebuilding of "The Criterion," for which injury he submitted the plaintiffs were entitled to damages.

Amongst the evidence called on behalf of the plaintiffs was that of Mr. Edward Carter, architect, who said that the parapet of the present wall of "The Criterion" was about 6 ft. 9 in. higher than the eaves of the old building. He had no doubt that it interfered with the light to Messrs. Leach Bros.' premises, and he assessed the damage to the property as equivalent to 10*l.* a year rental as the building now stood.

Mr. Eady, for the defence, submitted that there was no obstruction whatever for which the plaintiffs were entitled to damages.

Mr. Chas. Herbert Shoppee, architect and surveyor, said that he was of opinion that defendants' new building had no effect at all on the lighting of the plaintiffs' premises.

Cross-examined by Mr. Macnaghten, the witness admitted that the raising of the wall of "The Criterion" would not be likely to improve the lighting of the adjoining premises, but the fact that the new building was shorter by 5 ft. at the back atoned for the extra 6 ft. or so in the height. He thought the benefit was greater than the injury.

Mr. Thomas W. Willis, District Surveyor for Putney and Roehampton, and Mr. W. M. Brutton, the architect for "The Criterion," gave evidence to the same effect.

Mr. Rowe, the builder, also said that he did not think the work affected the plaintiffs' lights at all.

In the result his lordship awarded the plaintiffs 75*l.* damages, for which sum judgment was given, with costs.

ARCHITECTS AND THEIR PLANS.

AT Birmingham County Court on the 13th inst., before his Honour Judge Whitehorne and a jury, Messrs. Riley & Smith, architects, Colmore-row, sought to recover from Mrs. Clara Mason, hotel keeper, Stourbridge, the sum of 95*l.* 17*s.*, professional charges for services rendered. Mr. Stubbins (instructed by Mr. Arthur Smith) appeared for the plaintiffs, and Mr. Dorsett (instructed by Mr. Clulow) was for the defendant. The case for the plaintiffs was that they were instructed by the defendant to prepare plans for four pairs of semi-detached houses at Amblecote. The land had cost the defendant about 1,000*l.*, and she wished the plaintiffs to prepare plans for the houses to cost about 900*l.* a pair. She desired to let the houses at 25*l.* to 30*l.* each, and expected to get a return of 5 per cent. on her outlay. Plaintiffs prepared three sets of plans, but the defendant decided, after seeing the estimates, not to accept any of them, because the prices came out at considerably more than she was willing to pay. The plaintiffs had received no remuneration for their services, and contended that they were entitled to be paid for the work they had done.—Mr. George Harry Smith said that he told the defendant that she could not build that class of house to pay 5 per cent.—Mr. Dorsett: Do you mean to say that you cannot build 30*l.* houses to pay 5 per cent?—Mr. Smith: You cannot build them to pay 5 per cent. net, you may to pay 5 per cent. gross.—Mrs. Mason was called and stated that the estimates were about 400*l.* or 500*l.* above the amount which she told Mr. Smith that she was prepared to expend. The plans were therefore useless to her, and she had derived no benefit whatever from them.—The jury gave a verdict for the plaintiffs for 35*l.*—*Birmingham Post.*

WORKMEN'S COMPENSATION ACT.

AT Southwark County Court, on the 13th inst., Robert Martin, a labourer, applied to his Honour Judge Addison, Q.C., for compensation under the Workmen's Compensation Act, from his employers, Messrs. Reading & Co., wharfingers, Windsor Wharf, Bankside, Southwark.

Mr. Black was for the applicant, and Mr. Ellis Hill for the respondents.

Applicant's case was that whilst at work on a barge at the respondent's wharf, guiding a crane chain into the hold, he overbalanced and fell into the barge, breaking one arm and three ribs. His wages were 32*s.* per week, which he lost for nine weeks.

His Honour: The law allows you only 5*l.* 12*s.*, if anything, and by a clause in the Act I ought to

appoint somebody to hold an arbitration, the fee for which would be 4*l.* 4s., but we don't do that,

Evidence was given by respondents' servants that applicant was drunk at the time of the accident, and that the occurrence was solely due to his condition. When seen staggering on the gunwale of the barge, he was called to to come off, or he would be killed, but his only reply was to produce his trade-union card and to shout: "I'm worth more dead than alive. This will make you pay if I get hurt." Upon that he fell into the hold.

His Honour came to the conclusion that the accident was attributable to applicant's serious and wilful misconduct, which was a defence under the Act. He, therefore, gave judgment for respondents.

A BILSTON ARCHITECT AND HIS CHARGES.

AT the Wolverhampton County Court on Tuesday, before his Honour Judge Young, Richard James Rowe, architect, of Bilston, sought to recover from Edwin Jones, of Mount Pleasant, Bilston, the sum of 62*l.* 14s. for professional services. Mr. Dallow appeared for the plaintiff, and Mr. R. Tildesley for the defendant.

Plaintiff stated that upon the instructions of the defendant he surveyed some land at Bilston. Defendant said he wanted to erect four houses, and witness gave him the scale of architects' charges. He told Jones that the usual charge for getting out plans and superintendence was 5 per cent., to which he answered, "That's all right." As there were three houses alike he told the defendant he would charge 4 per cent. only. He prepared plans, but on February 6 the defendant called at his office and altered the size of each house, in consequence of which he had to prepare fresh drawings. At defendant's instruction he prepared the plans, which were fully approved on February 18. The lowest tender obtained was 2,090*l.* The defendant quibbled over the large amount, and eventually sent a letter to witness in which he said, "I have fully made up my mind not to build, as I cannot see my way clear to put up the houses to make them pay. Please let me have bill by return of post." Witness sent in his bill, but had not been paid.

Mr. W. J. Oliver, architect, gave it as his opinion that the charges made were fair.

Mr. Tildesley said the case for the defendant was that there was a distinct bargain that plans should be prepared for houses which should not cost more than 1,600*l.* The plans got out, however, were for considerably above that sum, and were, therefore, absolutely worthless. His client was willing to pay a reasonable sum for what plaintiff had done.

The defendant, in his evidence, bore out this statement. The plans the plaintiff prepared were useless to him

His Honour said that the whole history of the matter from the time when the plaintiff began to work, up till the time when the defendant abandoned the idea of building, tended very strongly, in his opinion, to the view that there was no stipulated sum agreed upon at the time when plaintiff was originally employed. He had come to the conclusion that plaintiff did agree to do the work for 4 per cent. commission, and he should give a verdict for the amount claimed, and costs.

ANCIENT LIGHTS CASE.

AT the Newcastle Summer Assizes, on the 11th inst., before Mr. Justice Grantham, the case of Arrol & Sons, Limited, and others, brewers, *v.* Barclay and another, was heard. Mr. Scott Fox, Q.C., with Mr. Manisty (instructed by Messrs. Stanton & Atkinson, Newcastle), was for plaintiffs; and Mr. Shortt, with Mr. Craig (instructed by Messrs. Cooper & Goodger, Newcastle), appeared for defendants.

Plaintiffs are the owners of the "Black Bull Inn," at the corner of Waterloo-street, Newcastle. The north side of the premises face the back street, and the lights it was alleged had been obstructed consisted of four bedroom windows in a building adjoining the western end of the public-house, with three stable gratings beneath, and a portion of a window in the public-house proper. These, counsel said, had been enjoyed for thirty and forty years. Up to the spring of this year there stood opposite to plaintiffs' property in the back lane some cottages measuring 16 ft. 3 in. to the eaves, and 27 ft. to the ridge. Defendants, Messrs. James Cairns Barclay & Charles Cooper, the owners of the cottages, pulled these down, and began an erection which, when completed, would be 40 ft. 6 in. to the eaves and 50 ft. 9 in. to the ridge. The back lane at the widest part was only 12 ft., and the new building represented twice that width on the top of an existing structure of 16 ft. This, plaintiffs said, caused serious obstruction to their four and a-half ancient windows, and three ancient gratings. The plaintiffs protested against the obstruction last May, and threatened to apply for an injunction. It was eventually arranged that defendants should proceed with the buildings, on the express understanding, Mr. Scott Fox said, that if plaintiffs had any rights to ancient lights, and these were infringed, defendants were to pay compensation.

Mr. Shortt intimated that the defendants took the position that plaintiffs' acquiescence in their building up to May 2 would prevent them from obtaining an injunction. The continuance of the work by defendants was to be without prejudice to any rights plaintiffs had, but nothing more.

Mr. Scott Fox said there was no question that plaintiffs' lights were injured. The pecuniary damage would be considerable, and plaintiffs would be prevented from developing their property as they might otherwise have done. They could not raise the height without injuring plaintiffs' lights. The property of the neighbourhood was increasing in value. Defendants were building warehouses, which plaintiffs thought would be useful on their side of the street.

Mr. B. F. Simpson, architect, gave evidence.

Other evidence was called to show that considerable damage had been done to plaintiffs' property by the diminution of light; also that the lights were ancient.

On behalf of the defence, several witnesses were called to prove that plaintiffs' premises still received sufficient light for the purpose of bedrooms, and that the site was unsuitable for the development of the property into shops or warehouses. Mr. Joseph Potts, one of these witnesses, held that the greatest value of the property was as an adjunct to the public-house.

Counsel having addressed the jury, his lordship summing up, said it seemed to him the height of absurdity to suggest that no damage had been done. There must have been a quantum, though he quite appreciated the difficulty there was in determining it. That was one of the things a jury was better able to estimate than any one individual. To stick up a big building as defendants had must, although the property was in a back street, undoubtedly materially depreciate the value of plaintiffs' property. Defendants' witnesses said the damage was infinitesimal; but, looking at it as practical men, he thought the jury would say the selling value of the plaintiffs' property was diminished. To arrive at the figure was difficult, but it was for the jury to say what, in their judgment, would be a fair sum to award plaintiffs.

The jury returned a verdict for plaintiffs, with damages, 400*l.*; and judgment was entered for the amount and costs.—*Newcastle Leader.*

ARCHITECTS AND THEIR FEES.

AT the Wolverhampton County Court on Tuesday, before his Honour Judge Young, Messrs. Manton & Sons, architects, of Wolverhampton, brought an action against Messrs. Trouncer Co., Limited, brewers, of Shrewsbury, and Mr. Burdass, a member of the firm, for the recovery of 21*l.* 17s., for the preparation of plans and specifications, and also for work done in relation to certain tenders, quantities, &c. Mr. Haslam appeared for the plaintiffs, and Mr. R. A. Willcock for the defendants.

The plaintiffs' case was that Mr. Burdass gave Mr. Manton, senr., instructions to prepare plans and specifications for certain alterations and improvements in connexion with premises at Compton with which the Outward Club was connected. The price agreed to was 5 per cent. After plaintiffs had done the work the proposed alterations were not proceeded with. There was a dispute over the amount of the bill and the plaintiffs claimed, as the work had not been carried out, the sum of 15*l.* 6s., which was 3½ per cent. on 437*l.*, the lowest tender, and 6*l.* 11s. or 1½ per cent. for the getting out of quantities. Defendants had paid 10*l.* 8s. 6d. into Court as a fair sum for the work done, being half of the 5 per cent. which the plaintiffs agreed to do all the work for. Replying to Mr. Willcock, Mr. Manton, sen., admitted that before the plans were approved by Mr. Burdass, he communicated with the builders. He had also asked three builders to send in tenders.

His Honour: It certainly seems that Mr. Manton assumed everything; assumed that the plans would be approved; assumed that the work would be proceeded with; and, further, assumed it would be necessary for him to put himself into communication with the builders. In the ordinary course, all that comes after the approval of the plans. This seems to me so contrary to the ordinary course of events.

Mr. Manton, in reply to Mr. Haslam, said, however, that Mr. Burdass saw the plans on a certain date, and, after witness had made some alterations, approved of them.

Two Wolverhampton architects were then called to speak as to the custom of charges made by the profession.

For the defence, Mr. Beck, a Wolverhampton architect, said that, in contract cases where the work was not carried out, after plans and specifications had been concluded, half the commission should be charged.

His Honour said the case, like all others, was dependent upon its own particular facts. Every one knew there were certain rules of the Institute with reference to architects, but no one would contend that an architect was not entitled to make a contract on any footing he thought fit. In this case it was agreed that the whole of the work should be done for 5 per cent. It was well known by the parties when the contract was made, that plans and specifications might not be acceptable to Mr. Burdass, and it was quite competent for Mr. Manton when he entered into the contract, to have stipulated that he would charge 5 per cent. if the plans were accepted and work undertaken, but that if it were cut off after he had prepared plans and specifications he must charge 3½ per cent. Mr. Manton had not done so, but had bound himself to do the work for 5 per cent. He had come to the conclusion that the sum paid into Court was quite sufficient payment. He therefore gave judgment for the defendants.

MEETINGS.

TUESDAY, JULY 25 TO TUESDAY, AUGUST 1.

Royal Archæological Institute.—Annual meeting, Ipswich.

RECENT PATENTS:

ACCEPTED SPECIFICATIONS.

Open to Opposition until September 12.

[1898] 12,885, Pelmear, Cummings, & Meggeson, a Substitute for Glass. 14,631, Uhlmann, Pantographical Apparatus for Producing Copies of Modelled Forms. 14,809, Smith & Willis, Electrical Accumulators, Plates, and Electrodes. 14,958, Varley, Electrical Motors and Dynamo-Electrical Generators. 15,139, Buffington, Acetylene and Similar Generators and Lamps. 16,131, André, Gas Grates and Stoves. 16,642, Dunstan, Disinfecting Ventilator or Sewer Gas and Germ Destroyer. 16,669, Berliner Kunstdruck und Verlagsanstalt v. A. & C. Kaufmann, Bricks and Tiles. 16,733, Evans, Generation of Acetylene Gas, Applicable to Ordinary Generators and Table and other Lamps. 16,858, Reid, Bunsen Burners. 17,239, Barnes, Securing Skirtings, Dados, &c. 17,250, Automatic Gas Lighting and Extinguishing Company, Automatical Gas Supply to Jets, and Lighting and Extinguishing them. 17,318, Ogden, Device for Holding Lathe Cutters and Similar Tools. 17,615, Duncan, and [1899] 11,924, Peacock, Circular Saw Guards. 17,759, Moustier, Crushing, Pulverising, and Similar Apparatus. 17,780, Niblett & Sutherland, Electrical Storage Batteries and Switches. 17,838, Yeadons, Washer or Scrubber for Purifying Gas. 17,921, Stephen, Production of Designs, Devices, &c., upon Material for Reproduction in Castings, or by the Zinco Electro-deposit or other known Processes. 17,933, Fawcett, Feeding Duplex Brick-making Machines. 18,246, Hendrichs, Grinding and Polishing Machinery. 18,350, Dormy, Process for Mechanically Enamelling Metal. 18,647, Steiger, Process and Material for forming Articles by Moulding. 18,713, Milroy, Ring for Pipe Joints. 19,093-4, Sheffield, Draught Excluders. 19,106, Hansen & Kraefling, Portable Generator of Acetylene Gas. 19,508, Mechan, Manhole Doors. 20,140, Jenkins, Apparatus for Watering Streets, &c. 22,485, Johnson, Metallic Lathing for Plastering, &c. 22,559, Twyford, Joints or Couplings of Sanitary and analogous Articles, Pipes, &c. 26,205, Bruce, Smoke and other Flues. [1899] 63, Plaissetty, and 11,653, Armington, Incandescence Mantles, Filaments, &c. 5,178-9, Altenbaugh, Machines for Automatically Gathering and Delivering Glass in manufacturing Glass Ware. 5,663, Bock, Continuous Kilns. 6,886, Bathurst, Wiring Electrical Installations. 7,508, Allgemeine Elektricitäts-Gesellschaft, Coating Metal Conductors with Glass. 7,861, Dansard, Soot Receivers for Chimneys. 8,638, Marks, Disconnectible Joints and Couplings for Pipes, &c. 8,944, Day, Combined Drawing Instruments and Calliper Gauges, &c. 8,946, Shuttleworth & Bell, Stone-sawing Machines. 9,156, Eldridge, Clark, Blum, & Blum, Manufacture of Calcic Carbide and Illuminating and Heating Gases. 9,640, Lang & Lang, Feed Arrangement of Lathes. 9,743, Deike, Alexander, & Mitchell, Acetylene Gas Generators. 9,990, Morris, Weighing Apparatus for computing Prices and Values. 10,141, Allen & Green, Locks and Latches. 10,311, Travaglini & Hall, Dies for Use in the manufacture of Tesseræ for Mosaics. 10,585, Parkyn, Combination Spanner and Pipe Wrench. 10,678, Edwards, Ash Pans for Fire Grates, &c. 11,105, Siemens & Halske A-G., Relay Apparatus for Closing a Subsidiary Circuit of an Electrical Installation when a Current in the Main Circuit has a certain Strength or Voltage. 11,296, Souder, Moving Stairways or Elevators. 11,537, Deimel, Portable Igniter for Gas Lamps and Gas-heating Apparatus. 11,551, Morin & Straguin, Acetylene Lamps. 11,687, Culmer & Culmer, Asphaltic Fluxes. 11,692, Walchners, Portable Sanitary Seat or Guard for Use upon Water-closet Seats. 11,953, Phillips, Stand Pipes for supplying Water for Street Purposes.

ABSTRACTS OF PATENTED INVENTIONS.

6,439.—BAND FRET SAWS: *W. Hargreve.*—Racks joined to a treadle-lever gear with a pair of pinions suspended by spiral springs and turning loosely upon the axis, which is rotated always in one direction by one ascending rack and the other descending rack, and a train of toothed gearing joins the band-saw pulley to the axis. A bevel wheel upon the pulley's axis drives a jig-saw through a connecting rod and crank. The top pulley of the band-saw is provided with adjusting screws.

6,450.—SIPHONS AND THEIR DISCHARGE: *P. Leonard and W. Hall.*—Of the two chambers into which the tank is divided, the smaller, containing the ball-float, is first filled. The water flows over the partition until the larger chamber becomes partly full, when the supply is cut off and the smaller chamber is rapidly filled through a fully-opened cock. Slightly above the water's ordinary level projects a siphon pipe, with trap and discharge pipe, which is covered by a bucket guided by a spindle and ring, and normally forced upwards by means of air-chambers fixed on to the bucket. During the filling air escapes through a pin hole in the bucket's top, which is too small to affect siphonical action. A spring bolt and a catch hold the spindle, the catch being released by the pressure of a push connected by chains and cranks to the bolt. As the bucket rises, siphonical action ensues above the pipe to empty the larger chamber, whilst the discharge starts a similar action in a pipe curved over the partition, and thus empties the smaller chamber into the discharge pipe. As the water falls the ball-float operates a lever, causing a pin to engage the spring bolt, whereby the push is prevented from being again worked before the larger chamber has been refilled. An overflow pipe is attached. The sound of inflowing water is deadened by fixing the supply pipe to the bottom of the tank, and an air vent at the top prevents siphoning.

6,452.—BLOCKS FOR FLOORS, VAULTS, ROOFS, &c.: *C. Weyler.*—During the process of casting or moulding the blocks perforated metal strips or sheets are inserted within them, the opposite diagonal corners being rounded in order to facilitate the insertion of the blocks between the

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Design for Band Stand	Crystal Palace Co.	30 gns.; 15 gns.; and 7 gns.	Aug 8
*Town Hall	Borough of Workington	40l.; 20l.; and 10l.	Sept. 15

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Foundation of Offices, Victoria-street, Liverpool	Lancs. & Yorks. Ry Co.	H. Shelmerdine, Archt. Hunt's Bank, Manchester	July 25
Sewerage Works, Slough-lane, &c.	Bromley (Kent) U.D.C.	F. H. Norman, Council Offices	do.
School, &c. Hall-street	Oxford Sch. Bd.	F. P. Morrell, 1, St. Giles's, Oxford	do.
Granite Road Metal (1,000 tons)	Southampton Corp.	W. B. G. Bennett, Boro Engr. Municipal-bldgs.	do.
Road Works (1,200 yards)	Sowerby U.D.C.	Surv. Council Offices	do.
Tar Paving, Crawley	Horsham R.D.C.	W. Dengate, Surv. 58, Park-st. Horsham	do.
Additions to Farm Steadings, Fintray, N.B.	.....	A. Stronach, jun. & Son, 20, Belmont-st. Aberdeen	do.
*Road Making and Paving Works	Willesden D.C.	O. Claude Robson, Public Offices, Kilburn, N.W.	do.
*Enlargement of Town Hall	Lewisham B. of W.	The Surv.'s Dept. Town Hall, Lewisham	do.
*Kerbing and Tarpaving	do.	do.	do.
Sewerage Works, Crookhill	Ryton U.D.C.	J. P. Dalton, Engr. Council Offices	July 26
Two Shops and House, Luddenden Foot, Lancs.	.....	T. H. Mitchell, Archt. Strand, Todmorden	do.
House, Tullygoan, Feeny, co. Derry	.....	J. P. M'Grath, Archt. 28, Carlisle-rd. Londonderry	do.
Electricity Works	Wigan Corp.	H. C. Bishop, Engr. Quadrant-bldgs. Wigan	do.
Boundary Wall, &c. Boothroyd-lane	Dewsbury Corp.	H. Dearden, C.E. Town Hall	do.
*Kentish Flints, Sand, and Hoggin	Mile End Vestry	J. M. Knight, Vestry Hall, Bancroft-rd. E.	do.
*Open Shed for Meat Traffic, Bostle; Engine Shed, Gurnce; and Erection of Offices, Whitecross-street	M. Ry. Co.	Co.'s Archt. Cavendish House, Derby	July 27
Residence, The Elms, Redruth	.....	S. Hill, Archt. Green-lane, Redruth	do.
Thirteen Cottages, Tolworth, Surbiton	.....	A. Mason, Archt. Assembly Rooms, Surbiton	do.
Sewerage Works	Wycombe (Bucks.) R.D.C.	John Taylor & Co. Engr. 27, Great George-street, S.W.	do.
Paving Works, West Park-road	Gateshead Corp.	J. Bower, Boro Surv. Town Hall	do.
*Public Baths, Millwall	Poplar Vestry	Clarksons, 136, High-st. Poplar	do.
*Latrine and W.C. Accommodation for School at Banstead	Kensington & Chelsea Sch. Dist.	Cecil Sharp, 11, Old Queen-st. S.W.	July 28
Paving Works, Penwortham Bridge	Preston Town Commrs.	Myres & Co. Engr. 15, Chapel-st. Preston	July 26
Additions to Cottage Hospital, Chorley	.....	W. H. Dinsley, Archt. Cleveland-st. Chorley	do.
*Road Making and Sewer Works	Hornsey U.D.C.	E. J. Lovegrove, Southwood-lane, Highgate, N.	July 31
Tar Paving, Park Hill Farm	Chingford U.D.C.	W. Stair, Surv. Council Offices	do.
Drainage Works	Clayton-le-Moors U.D.C.	A. Dodgeon, Surv. Council Offices	do.
Sewer	Erdington U.D.C.	H. H. Humphries, Engr. Public Hall, Erdington	do.
Boiler House and Stores, Gas-street	Oldham Corp.	A. Andrews, Gas & Water Offices, Oldham	Aug. 1
Warehouse Extension, Liverpool	Lancs. & Yorks. Ry. Co.	R. C. Irwin, Hunt's Bank, Manchester	do.
Business Premises, Garrison, Ireland	.....	M. Hammond, Bridgetown, Strabane, co. Donegal	do.
Generating Station in the Strand, Swansea	Swansea Corp.	Boro Surveyor, 13, Somerset-place, Swansea	do.
*Jarrah Wood Blocks	Wandsworth B. of W.	The Clerk, East Hill, Wandsworth	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Making-up Roads and Streets	Tottenham U.D.C.	P. E. Murphy, 712, High-rd. Tottenham	Aug. 1
*New Bridge at Tilesford	Pershore R.D.C.	The Clerk, Union Offices, Pershore	do.
*Artisans' Dwellings	Brighton Council	F. J. C. May, Town Hall, Brighton	Aug. 2
Road Works	South Shields Corp.	S. E. Burgess, Boro. Engr. South Shields	do.
Main Sewer Work, &c.	do.	do.	do.
Stores, The Green, Darwen	Co-operative Soc.	Sames & Green, Archt. Knott-st. Darwen	do.
*Underground Convenience	St. Marylebone Vestry	J. P. Waddington, Court House, Marylebone-ln. W.	Aug. 3
*Stoneware Pipe Sewers, &c.	Wanstead U.D.C.	Surveyor, Council Offices, Wanstead, E.	Aug. 4
Five Cottages	Lisnaskea R.D.C.	J. Hoey, Council Offices, Lisnaskea	Aug. 5
Schools	Burntisland Sch. Bd.	R. Little, Archt. 4, St. Brycedale-av. Kirkcaldy	do.
Whinstone Road Metal	Sunderland R.D.C.	J. W. Hodgson, 17, John-st. Sunderland	do.
Gasworks, Friarton	Perth Gas Commrs.	W. Macleish, City-chmbrs Perth	Aug. 7
*Repairs to Workhouse Buildings, and Painting, &c. Schools	Hendon Union	Clerk's Office, Edgware	Aug. 9
*Alterations to Town Hall	Bermondsey Vestry	The Surveyor, Town Hall, Bermondsey	Aug. 10
Additions to School, Tranmere	Birkenhead Corp.	C. Brownridge, C.E. Town Hall	Aug. 15
*New Coastguard Buildings at Filey	.....	Coastguard Station, Filey	Aug. 18
*New Coastguard Buildings at Kirkwall, Orkney, N.B.	.....	Watch Room, Coastguard Station, Kirkwall, N.B	do.
*Sewerage Works	Plymouth Corp.	J. Mansergh, 5, Victoria-st. Westminster	Aug. 24
*Water Supply Works, Willesborough	East Ashford R.D.C.	Bailey-Denton, Son, & Lawford, 9, Bridge-st. Westminster	Aug. 28
*Thirty Cottages, Custom House, E.	H. I. Cundy	H. I. Cundy, 91, The Grove, Stratford, E.	No date
*Erection of School	Stourbridge School of Science and Art	J. M. Gething, Archt. Kidderminster	do.
Wesleyan Church, Wolverhampton	.....	A. Marshall, Archt. King-st. Nottingham	do.
Residence, Arnside, Kendal	T. Crossfield	J. Hutton, Archt. Kendal	do.
Church, Braithwaite, nr. Keswick	.....	G. Watson & Son, Archt. 3 St. Andrew's-pl. Penrith	do.
School, Brecon	.....	J. H. Phillips, Archt. St. John's-chmbrs. Cardiff	do.
Pipe Sewer, Welholme-road	Grimsby U.S.A.	M. Petree, C.E. Town Hall square	do.
Three Houses, Heysham-rd. Morecambe	.....	Walker & Collinson, Archt. Market-st. Morecambe	do.
Three Houses, Alderson-road, Great Yarmouth	.....	G. Waller, Archt. 3, Middlegate-st. Gt. Yarmouth	do.
Foundry, Greengate, Keighley	.....	J. Haggas, Archt. North-st. Keighley	do.
Four Houses, Kingswood, nr. Bristol	.....	T. J. Moss Flower, C.E. Baldwin-st. Bristol	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
*Surveyor and Inspector of Nuisances	Minehead U.D.C.	Surveyor, 65l. per annum, Inspector, 25l.	July 24
*Clerk of Works	Shoreditch Vestry	3l. 3s. weekly	July 25
*Clerk to the Manager of Works	West Ham Council	Not stated	July 26
*General Foreman	St. Matthew's Vestry, Bethnal Green	3l. per week	July 27
*Architectural Assistants (3) temporarily	L.C.C.	3l. 3s. each weekly	do.
*Instructors in Wood Carving	Sch. Bd. for London	10s. 6d. per evening	July 29
*Surveyor's Assistant	Bristol Sanitary Com	180l.	July 31
*Instructor	Borough of Swansea	120l. per annum	do.
*Clerk of Works	Southport Electricity Com.	4l. weekly	Aug. 1

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv. vi. viii. x. & xx. *Public Appointments, pp.* xviii. xix. & xx.

metal joists or girders. For the strengthening cores the waste metal sheets produced by stamping-out discs for bells are preferably employed.

6,511 AND 6,511A.—FLOORS, WALLS, AND PLASTIC COMPOSITIONS: *J. T. Szek.*—After the backing or foundation of the wall or floor has been levelled small nails are driven in; the surface is plastered over with hydraulic cement, mortar, or a mixture of Sorel's cement and sawdust, and then is applied a layer of plastic composition made as follows:—Sawdust, wood wool, wood pulp, cellulose, &c., are treated with sulphite of magnesia or borax, or a mixture of both is dissolved in water. The dried pulp is ground and mixed with magnesia made into a paste with a weak solution of hydrochloric acid. The composition may be coloured with pigments, and be shaped into tiles, slabs, cornices, corbels, pilasters, and other architectural mouldings.

6,575.—LIFTS AND HOISTS: *J. A. Stevens.*—To the valve spindle is attached a lever whose lower end is pivotted, whilst the upper end is joined to a rack-bar worked by a pinion; a pawl upon the lever engages in a ratchet wheel at the spindle's end, and is turned upon its axis each time the spindle is raised, whereby grooving of the leathers is prevented.

6,602.—HEARTHS, AND AIR-HEATING AND VENTILATING STOVES: *R. Wilson & S. Goodman.*—Instead of the customary hearthstone a cast-iron box is laid upon a cement floor, the hearth tiles are laid over the box which is fitted with a pipe through which the air, from outside, enters to pass a range of baffle-plates on its way to the vertical side flues, which meet in a common flue that commnnicates with an opening in the stove's front through which the warmed air enters the room.

6,625.—LIGHTING AND EXTINGUISHING GAS: *Industriewerke Kaiserslautern Metall-und-Porzellan Fabrikation.*—The armature of an electro-magnet moves a rotary disc which controls the supply of gas, the disc-valve has a series of ratchet teeth and holes—the number of the latter being half that of the former—and is turned to the extent of one tooth by a pawl on the pivotted armature at every passage of the current. The gas is turned on whenever the holes register with the channels; it is turned off whenever the ratchet is moved one tooth, and the disc closes the channels. The gas may also pass to a pilot jet, the pawl and armature being adjusted with springs.

6,655.—WORKMEN'S TOOL-BAGS: *W. D. Wilford.*—Two layers of canvas are used for the sides which are secured to the opposite edges of an intermediate band or gusset; the loop-handles are made of a rope, in one length, that is passed around the bag and is attached to it by a continuous piece of webbing.

6,664.—STREET WATER-SERVICE: *W. Jones.*—Branches for hose are provided at the base of a curved stand-pipe used for filling water-carts; the screwed plugs in the caps which close the branches may be replaced with taps for domestic supply in frosty weather, a stop-valve also is fitted beneath, together with a small pipe and a cock for draining the stand-pipe.

6,684.—SPIGOT AND SOCKET PIPE-JOINTS: *J. F. Normoyle & H. J. Baack.*—The bore of the jointing pieces, being equal to that of the pipes, has recesses with bevelled surfaces at the ends for packing-washers composed of soft metal; the pipe-ends also are bevelled so that they lie parallel to the surface when the joint is formed; the packing is compressed by screwing the pipes into place.

6,705 and 6,741.—PIPE JOINTS: *R. Ewing.*—The spigot and socket ends of metal pipes have soft metal casings so fashioned as to fit together, and the joint is made by caulking or staving at the exposed ends of the coverings which may consist of extensions of the lead or composition linings: for the butt and sleeve joints of lined pipes, the lining is bent over at the ends, the pipes are joined by soldering, fusion, or other manner, and the joint is covered by a lined, or an unlined, sleeve; the lining may also be employed to cover so much of the pipes as lies within the sleeve, tightened up by caulking.

6,764.—VAPOUR BURNERS: *A. af. Forselles.*—The burner is described as being adapted for boiling, soldering, heating incandescent bodies and for similar purposes; the volatile oil, supplied under pressure, rises up a tube to be vaporised, whence it passes through a small orifice in another tube, and in doing so draws air into the narrowed mouth of the mixing tube; the mixed air and vapour burn above the gauze top of the mixing-tube, and to ensure an even supply and production a roll of wire cloth or other material, or a set of diaphragms is placed within the first-named tube.

6,849.—CENTERING FOR ARCHES: *H. J. Roberts.*—To a channel-iron bar, connected by means of toggle-links or arms to right-hand and left-hand nuts upon a screwed shaft, are hinged segmental plates strengthened with angle-iron bars; a carriage, that runs along the bottom of the sewer or conduit, supports the shaft, and light side-arms or toggle-links join each nut to the collapsable centre, the nuts being also connected by means of broad toggle-links to a channel-iron bar at the bottom of the sewer; when the central screw is turned in one direction it draws together the nuts upon the screwed shafts, and the consequent straightening of the toggle-links expands the centering, which similarly becomes contracted when the screw is turned in the opposite direction.

6,893.—SHEET-METAL LATHING: *J. A. Willmore.*—Perforations or slits are made, in pairs, in the lathing, with the metal bent outwards at almost a right angle between each set of pairs of slits or perforations, the pairs in one series being arranged to break joint with and overlap the pairs in the next series; the invention extends to a machine for making lathing after the kind described.

6,926-7.—SIPHONS AND GULLY-TRAPS: *Duckett & Son & Others.*—Within the tank or cistern is placed a well which contains a bell plunger, conical inlets being provided for obtaining the flush. Air passes through a passage beneath the igrating into the soil-pipe, which is trapped at its base, and is provided with an inspection-lid.

6,994.—CISTERNS AND SIPHONS: *J. Marsh.*—For an improvement upon No. 18,952 of 1897, a stem, sliding within a tube, is attached to the bell of the siphon, which is made in one piece with a float; the bell and float are normally depressed by means of a pawl engaged by a groove in the stem; the rising water lifts a spherical float whose arm strikes against and frees the pawl, whereupon the bell of the siphon rises, and the flush ensues; a valve also is provided for flushing cisterns, giving an automatical and intermittent flush, which is fitted with a screw that has a diminished and hollowed end for regulating the flow of the in-coming water from the service-pipe.

SOME RECENT SALES OF PROPERTY

ESTATE EXCHANGE REPORT.

July 1.—By Messrs. SPELMAN (at Norwich).
Tivetshall St. Mary, Norfolk.—The Croft House Farm, 119 a. 3 r. 21 p., f. and c. £1,275
The Hill Farm, 81 a. 3 r. 5 p., f. and c. 860
Fakenham, Norfolk.—The Heath Farm, 203 a. 3 r. 28 p., f. 2,500

July 3.—By PROTHEROE & MORRIS (at Ilford).
Ilford, Essex.—Aldborough-rd, 14 plots of land, f. 1,224
Ward's-lane, 37 plots of land, f. 1,887

July 5.—By ELLIOTT, ELLIS, & CO. (at Kingsbridge).

Hope Cove, Devon.—Freehold building land, with two cottages and boathouse, 6 a. 0 r. 15 p., f. £550

By T. MARSON (at Leicester).

Desford, Leicester.—Coton House, and 66 a. 2 r. 20 p., f. 3,750

Osbaston Hollow, Leicester.—"The Gate Inn," and 1 a. 3 r. 37 p., f. 1,000

House and shop, six cottages, and 5 a. 2 r. 19 p., f. 940

By THORNBORROW & CO. (at Shap).

Shap, Westmoreland.—The Mid Town Farm, 44 a. 2r. 19 p., f. 1,425

July 6.—By TURNER, RUDGE, & TURNER (at East Grinstead).

Newchapel, Surrey.—Lowland's Farm, 68 a. 0 r. 11 p., f.

July 7.—By P. & G. GEEN.

Finsbury.—31, Clifton-st., u.t. 6½ yrs., g.r. 5*l.* 8s. 175

Hackney.—57, Frampton Park-rd., u.t. 38¾ yrs., g.r. 5*l.* 5s., r. 36*l.* 330

Ealing.—15, The Common, c., e.r. 72*l.* 750

By GREEN & SON.

Battersea.—21, 21a, and 27, New-rd., u.t. 62 yrs., g.r. 11*l.*

41, 43, 45, and 47, Henley-st., u.t. 66¼ yrs., g.r. 10*l.* 545

Forest Gate.—126, Field-rd., f. 645

By MIDDLETON & CRACKNELL.

Hampstead.—27 and 29, Stanley-gdns., u.t. 63¾ yrs., g.r. 18*l.*, r. 120*l.* 240

Kentish Town.—7, Southampton-rd., u.t. 60 yrs., g.r. 7*l.* 1,200

By J. W. MORLEY & LETTS.

South Kensington.—9, Hogarth-pl., f., e.r. 75*l.*; also i.g.r. 4*l.*, reversion in 10 yrs. 400

Fulham.—Fulham-rd., "The Swan Tavern," i.g.r. 120*l.*, u.t. 53 yrs., g.r. 120*l.*, with reversion for 11¼ yrs. 1,070

1 and 2, The Broadway, u.t. 64 yrs., g.r. nil, r. 140*l.* 180

By TOPLIS & HARDING.

Wanstead.—Hermon Hill, "The Fir Trees" p.-h., f., r. 50*l.* 3,100

Hermon Hill, Mary's Cottage, f., r. 30*l.* 810

Stratford.—154, Leyton-rd. and "The Castle" p.-h., f., r. 130*l.* 4,050

Leyton-rd., f.g.r. 15*l.*, reversion in 21¼ yrs. 600

126 to 140 (even), Leyton-rd., f., r. 208*l.* 2,770

Castle-st., two peppercorn g.r.'s, reversions in 20¾ and 21½ yrs. 125

Railway-ter., f.g.r.'s 31*l.* 10s., reversions in 21½ yrs. 1,180

Chobham-rd., a building site, area 8,000 ft., f. 800

Stepney.—St. Ann's-rd., f.g.r. 25*l.*, reversion in 74¼ yrs. 595

St. Ann's-rd., f.g.r.'s 33*l.*, reversion in 47½ yrs. 855

July 8.—By SEWELL & BARNES (at Norwich).

Oby, Norfolk.—A freehold farm, 139 a. 3 r. 14 p. 3,550

Bulliant's Marsh, 10 a. 1 r. 38 p., f. 320

By MESSRS. SPELMAN (at Norwich).

Lenwade, Norfolk.—Ten cottages and gardens, f. 689

Sparham, Norfolk.—Six cottages and gardens, c. 210

Bawdeswell, Norfolk.—Two shops and houses, f. and c. 210

Eight cottages and two plots of land, f. and c. 162

Moulton St. Michael, Norfolk.—Two occupation farms, 82 a. 0 r. 19 p., f. and c. 1,130

Shipdham, Norfolk.—Five cottages and gardens, f. 280

By ROBERTS, SON, & TORY (at Blandford).

Blandford, Dorset.—A freehold residence 400

The Masonic Hall, area 3,000 ft., f., e.r. 50*l.* 500

19, 21, and 23, West-st., f., r. 46*l.* 780

July 10.—By Messrs. KEMSLEY.

Finchley.—Ballard's-lane, Field Cottage and 8 a. 2 r. 35 p., f. 8,250

Ballard's-lane, a freehold building estate, 8 a. 3 r. 9 p. 6,100

Nether-st., a plot of building land, 3 a. 1 r. 4 p., f. 2,050

By KNIGHT, FRANK, & RUTLEY.

Bracon Ash, Norfolk.—The Woodlands and 17 a., f. 3,800

By ERNEST OWERS.

Hampstead.—2, Ulysses-rd., u.t. 85½ yrs., g.r. 7*l.* 7s., e.r. 48*l.* 440

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS:

WOOD.*

Per Petersburg standard hundred.

	£ s. d.	£ s. d.
White Sea: first yellow deals	17 5 0	18 5 0
Second do.	13 10 0	15 0 0
Third do.	11 0 0	11 10 0
Battens, 40s., 30s., and 15s. less respectively.		
Petersburg: first yellow deals	12 0 0	14 10 0
Second do.	11 0 0	12 10 0
Battens, 30s. and 20s. less respectively.		
Petersburg, white deals	10 0 0	12 0 0
Do. white battens	8 0 0	9 10 0
Riga, white deals	8 10 0	9 10 0
Swedish mixed yellow deals	13 10 0	17 0 0
Third do.	12 10 0	14 10 0
Fourth do.	11 0 0	12 0 0
Fifth do.	10 0 0	11 0 0
Battens, 30s., 20s., and 10s. less respectively.		
Whitewood, 10 to 20 per cent. less.		
Finnish unsorted yellow deals	10 0 0	10 10 0
Battens, 10s. and 5s. less respectively.		
Whitewood, 5 to 10 per cent. less.		
Norwegian second yellow battens	8 0 0	9 0 0
Third do.	7 10 0	8 10 0
Fourth do.	7 0 0	8 0 0

* The prices named are for the wood as imported and landed in the docks. Ten per cent., approximately, should be added in order to arrive at the current trade prices.

	£ s. d.	£ s. d.
Whitewood, 10s. less.		
Danzig, Crown Deck deals, per 40 ft. 3 in.	0 15 0	1 5 0
Brack	0 12 0	1 0 0
St. Lawrence Pine deals, &c., per P.S.H.:—		
1st, Bright and Dry, regular sizes	19 0 0	25 10 0
,, ,, oddments	12 0 0	18 15 0
2nd ,, regular sizes	14 0 0	17 5 0
,, ,, oddments	9 10 0	13 0 0
3rd ,, regular sizes	9 5 0	10 5 0
,, ,, oddments	7 0 0	8 10 0
4th ,, regular sizes	6 5 0	7 5 0
,, ,, oddments	5 15 0	6 15 0
St. Lawrence Spruce deals, &c.		
First, regular sizes	8 5 0	10 5 0
Second ,,	7 5 0	8 5 0
Third ,,	7 0 0	7 15 0
Fourth ,,	5 15 0	6 15 0
Oddments and battens at 20s., 10s., 7s. 6d., and 5s. less respectively.		
New Brunswick Spruce deals, &c.	7 0 0	7 15 0
Oddments, battens, and fourths	6 5 0	7 5 0
United States pitch pine planks and boards	8 0 0	12 0 0
Prepared Boards, per square		
1¼ by 6½ and 7 in. 1st yellow	11 6	14 9
,, ,, 2nd ,,	10 0	11 9
1 by 6½ and 7 in. 1st ,,	8 6	10 9
,, ,, ,, white	8 0	8 9
,, ,, 2nd yellow	8 0	9 0
,, ,, ,, white	6 6	7 3
⅞ by 6½ & 7 in. 1st & 2nd yellow	7 3	8 0
,, ,, ,, white	6 9	7 6
¾ by 6½ and 7 in. 1st yellow and white (grooved, tongued, and beaded)	6 3	8 9
¾ by 6½ and 7 in. 2nd yellow and white (ditto)	5 3	7 6
⅝ by 6½ and 7 in. 1st yellow and white (ditto)	5 3	6 0
⅝ by 6½ and 7 in. 2nd yellow and white (ditto)	4 9	5 6
Narrower widths at 10 per cent. less.		
3rd quality at 15 per cent. less than 2nd.		
Danzig and Memel Fir Timber— per load		
Best middling	2 10 0	3 10 0
Good middling and Second	2 0 0	3 5 0
Common middling	1 10 0	2 10 0
Undersized	1 10 0	1 15 0
Swedish and Norwegian Balks	1 5 0	1 15 0
Baltic Oak Timber—		
Danzig and Stettin—Large	3 10 0	4 0 0
Small	2 0 0	2 5 0
Quebec Timber per load		
Yellow Pine	4 12 6	6 5 0
Oak	4 7 6	6 10 0
Elm	3 17 6	4 17 6
Ash	3 2 6	4 7 6
Birch	3 10 0	5 10 0
New Brunswick, &c., Birch	2 5 0	3 0 0
American Pitch Pine Timber	2 17 6	3 10 0
Wainscot, per log, 18 cubic ft.—		
Crown (Eng. & Dutch) } nominal	6 0 0	7 15 0
Brack } nominal	5 5 0	6 5 0
Lathwood, per cubic fathom—		
Petersburg	4 0 0	6 10 0
Riga and Danzig	4 10 0	5 10 0
Norway Poles, per ft. run	0 0 1	0 0 1½
Oak Staves, per mille full size pipe		
Memel, Crown	210 0 0	220 0 0
Brack	180 0 0	190 0 0
Danzig	165 0 0	175 0 0
Bosnia, single Barrel (nominal)	28 0 0	30 0 0
United States, Pipe	35 0 0	42 10 0
Hogshead, extra heavy and double extra	27 10 0	32 10 0
Indian Teake per load	11 5 0	16 5 0
British Guiana Greenheart	0 0 0	8 0 0
Mahogany, per foot superficial—		
Honduras, cargo average	0 0 4½	0 0 6
Nicaragua, do.	0 0 4¾	0 0 5½
Tabasco, do.	0 0 4	0 0 6½
Mexican, do.	0 0 3½	0 0 4
Panama, do.	0 0 3	0 0 4
African, do.	0 0 3½	0 0 5
Cuba, do.	0 0 5½	0 0 7½
St. Domingo, do.	0 0 5	0 0 7
Do Curls (good to prime)	0 0 9	0 1 3
Walnut American (logs)	0 2 3	0 4 6
Do. do. (planks and boards)	0 2 0	0 7 6
Italian, per foot superficial	0 0 3	0 0 7½
Black Sea, per ton	6 0 0	12 0 0
Satin Walnut (logs) per foot cube	0 1 0	0 1 3
,, (planks and boards)	0 2 0	0 2 9
Sequoia (Californian redwood), per foot cube	0 1 9	0 2 0
Whitewood, American (logs)	0 1 3	0 1 6
,, ,, (planks and boards)	0 1 6	0 2 9
Quartered oak ,, ,, ,,	0 2 3	0 4 0
Kauri pine (logs)	0 1 9	0 2 0
,, ,, (planks)	0 2 3	0 2 9
Jarrah (planks)	0 2 3	0 2 6
Lancewood spars each, fresh and large	0 6 0	0 10 0
Lancewood spars, ordinary to fair	0 4 0	0 6 0
Degame spars	0 8 0	0 12 6

METALS.

	£ s. d.	£ s. d.
IRON—Pig, in Scotland ton	3 11 6	0 0 0
Bar, Welsh, in London	6 0 0	6 5 0
Do. do. at works in Wales	5 15 0	5 17 6
Do. Staffordshire, in London	6 5 0	7 10 0
COPPER—British cake and ingot	79 15 0	80 5 0
Best selected	80 15 0	81 5 0
Sheets, strong	84 0 0	87 0 0
Chili bars	76 5 0	0 0 0
YELLOW METAL lb.	6¾d.	7¼d.
LEAD—Pig		
Spanish ton	14 10 0	0 0 0
English Com. Brands	14 15 0	0 0 0
Sheet, English, 6 lbs. per sq. ft. and upwards	15 15 0	0 0 0
Pipe	16 5 0	0 0 0
ZINC—English sheet ton	31 0 0	0 0 0
Vieille Montagne	32 10 0	0 0 0
Spelter	28 15 0	26 0 0
TIN—Straits	131 12 6	0 0 0

	£ s. d.	£ s. d.
Australian	131 17 6	132 7 6
English Ingots	135 0 0	136 0 0
Banca	0 0 0	0 0 0
Billiton	0 0 0	0 0 0

OILS.

Linseed ton	20 2 6	0 0 0
Cocoanut, Cochin	29 5 0	0 0 0
Do. Ceylon	25 15 0	0 0 0
Palm, Lagos	24 0 0	0 0 0
Rapeseed, English, pale	23 10 0	0 0 0
Do. Brown	22 0 0	0 0 0
Cottonseed ref.	17 0 0	17 15 0
Oleine	17 0 0	19 0 0
Lubricating U.S.	0 5 6	0 7 6
Do. Black	0 5 0	0 6 0
TAR—Stockholm barrel	1 6 6	0 0 0
Archangel	1 0 0	0 0 0
Turpentine	30 10 0	0 0 0

TO CORRESPONDENTS.

S. S. P. (Amount should have been stated). "Piccadilly" (Your letter too late for insertion; but the Institute already have the subject under consideration).

NOTE.—The responsibility of signed articles, letters, and papers read at public meetings, rests, of course, with the authors.

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ABERTILLERY (Mon.).—For rebuilding the "Bell" inn, for Messrs. Phillips & Sons, Limited. Messrs. Swalwell & Creighton, architects, Steam Packet Chambers, Dock-street, Newport. Quantities by architects:—

David Lewis	£1,260 0	D. Jno. Davies	£1,068 0
W. Smith	1,192 5	Jenkins & Son, Newport*	945 0
Lawson & Co.	1,177 0		
C. H. Reed	1,168 0		

BURTON-ON-TRENT.—For additions to Edge Hill House, Stapenhill, for Mr. John H. Radford, of Llandudno. Mr. Thomas Jenkins, architect, 35, High-street, Burton-on-Trent. Quantities by the architect:—

J. T. Varlow	£282 0 0	W. Gee	£275 2 6
Henry Edwards	276 12 6	Geo. Kennard*	272 12 7

[With additional work at schedule of prices.]

GUISBOROUGH.—For the execution of road works, Cleveland-street, for the Urban District Council. Mr. B. Dunning, surveyor, Council Offices, Guisborough:—

J. R. Limbs	£120 4 0
Cruddas & Son	118 9 9
Francis Young, Wilson-street, Guisborough*	95 15 0

[Surveyor's Estimate, £97 2s. 4d.]

HALIFAX.—For providing and laying kerbing and channelling, Elland-road and Saddleworth-road, Upper Greetland, for the Rural District Council. Mr. T. Gordon, surveyor, Clifton, Brighouse, Yorks:—

T. E. Aspinall	£170 0 0
Drinkwater & Schofield	139 18 4
Tom Noble	138 0 0

LONDON.—For engineering works, Poplar Union. Mr. F. J. Warden-Stevens, consulting engineer, 34, Victoria-street, S.W.:—

Electric Motors.

General Electric Company*	£231 0 0

Battery of Accumulators.

Hart Accumulator Co.* (Maintenance, £22 10s. per annum for eight years.)	456 3 8

Electric Cables, Wiring, and Fittings.

Speedy, Congdon, & Co.*	1,975 0 0

Main Switchboard and Distribution Boards.

Verity's, Limited*	523 0 0

Artesian Wells.

Harvey & Williams, Limited*	1,600 0 0

LONDON.—For the brickwork and cast-iron sashes of superstructure of proposed new shops for Messrs. Yarrow & Co., Limited, at London-yard, Cubitt Town, E. Messrs. Bradshaw, Brown, & Co., architects, of Billiter-square-buildings, E.C.:—

T. H. Jackson	£4,600	Harris & Wardrop	£4,027
Dove Bros.	4,535	G. Minter	3,697
Mowlem & Co.	4,196	Chafen & Newman*	3,495
Colls & Sons	4,169		

LONDON.—For paving with wood blocks portions of the carriageways of Duncan-street and Hornsey-rise, at present macadamised, for the Vestry of St. Mary, Islington. Mr. J. Patten Barber, Chief Surveyor:—

E. H. Jackson	£1,979 2 10	Acme Wood Flooring Co., Victoria Pk.*	£1,763 10 3
Wm. Griffiths.	1,833 18 11		

[See also next page

LONDON.—For the erection of six shops in Philip-lane, Tottenham, for Mr. D. Burnett. Mr. E. Howard, architect :—

W. Hawley, Tottenham* £2,150

LONDON.—For erecting shop, meat stores, and flats, Nos. 30 and 31, Little Marylebone-street, W., for Messrs. W. & A. Curnick. Messrs. White & Page, architects. Quantities by Messrs. Northcroft, Son, & Neighbour :—

Lawrence & Son	£7,368	C. Wall	£6,954
Holloway	7,342	Patman & Fothering-ham*	6,831
G. H. & C. Bywaters	7,218		
Lidstone & Son	6,970		

NEW BROMPTON (Kent). — For the supply of Cherbourg quartzite and Kentish ragstone, for the Gillingham Urban District Council. Mr. C. Candler, Surveyor, Council Offices, New Brompton :—

	s.	d.
Kent Road Maintenance Supply (Cherbourg granite)	11	0
Cherbourg Quartzite Company, Mark-lane, London*	10	10
Ragstone.		
F. A. Hughes.....	6	2
Bensted & Son	6	1
Constable & Co.....	6	1
Chittenden, Lake, & Co., Maidstone*.....	5	11

PORTISHEAD (near Bristol).—For the reconstruction of the drainage and sanitary arrangements of the following houses :—"Portishead House," "Glenmore," "Coburg Villa," "Gotha Villa," "Marine Villas"; also "Severn Bank" and adjoining houses, for Mr. George Corner. Mr. T. J. Moss-Flower, C.E., engineer, 2, Victoria Mansions, Westminster, and Scottish-buildings, Bristol :—

Biss & Son, contractors, Portishead.†

† Accepted on a schedule of prices.

SOUTHWOLD.—For Cliff Protection Works, Southwold. Mr. F. Ball, Borough Surveyor :—

Pedrette & Co.	£7,990	0	0	Moran & Son	£6,720 0 0
Trueman	7,272	0	0	Double, Ipswich*	6,400 0 0
Cooke & Co...	7,147	0	0		
Prestwich	6,834	7	6	King	5,943 6 0

[Surveyor's estimate, £6,600.]

SURBITON.—For making-up Victoria-avenue and St. Andrew's-square, for the Urban District Council. Mr. S. Mather, C.E., Surveyor's Offices, Victoria-road, Surbiton :—

Victoria-avenue.

J. Nicholas ..	£1,261 17 0	S. Kavanagh..	£1,073 10 0
H. Dally	1,190 3 6	S. Atkins, Kingston-on-Thames*....	967 0 0
Killingback & Co.	1,190 0 0		

St. Andrew's-square.

Killingback & Co.	1,280 0 0	S. Atkins	£1,170 0 0
J. Nicholas ..	1,188 7 6	S. Kavanagh, Surbiton* ..	1,106 2 0

SWINDON.—For additions to school buildings, King William-street. Mr. W. H. Read, architect, Corn Exchange, Swindon :—

W. Dean	£188 10 0	A. J. Colborne..	£174 18 10
J. Lay	185 8 0	J. Williams* ..	167 0 0
C. Williams	183 0 0		

THATCHAM (Berks). — For the erection of four cottages, for Mrs. Wallis. Mr. W. H. Bell, architect, the Market-place, Newbury. Quantities by the architect :—

Head	£720 0 0	Chivers	£673 0 0
Elms & Sons ..	700 0 0	Houghton, Newbury*	671 3 9
James.....	690 0 0		

TONYPANDY (Glamorgan).—For alterations and additions to business premises, Pandy-square, for Mr. J. W. Richards. Messrs. Griffiths & Jones, architects, Tonypandy :—

Rowlands & Lloyd, Trealaw, Rhondda*. £471 17

[Separate tenders to be invited for chemist and stationer's fixtures and wood-block flooring.]

WALTON-ON-THE-NAZE.—For the erection of floral hall and conservatory buildings, Round Garden, for the Coast Development Company, Limited. Mr. C. H. M. Mileham, architect, 1, Lincoln's Inn-fields, W.C. :—

Shillitoe £3,750
Everett & Son, Colchester* 2,682

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THE SUBSCRIPTION LIST will CLOSE on or before WEDNESDAY, the 26th JULY, 1899.

THE THAMES IRON WORKS SHIPBUILDING & ENGINEERING COMPANY,

Incorporated under the Companies Acts, 1862 to 1898. LIMITED.

AUTHORISED CAPITAL - £600,000,

In Shares of £1 each, consisting of

£300,000 Five per Cent. Cumulative Preference Shares.
300,000 Ordinary Shares.—£600,000.

ISSUE OF 300,000 Five per Cent. Cumulative Preference Shares of £1 each (Preferential both as to Capital and Interest), and £200,000 Four per Cent. Irredeemable First Mortgage Debentures, at par, in 2,000 Debentures of £100 each.

Messrs. C. J. HAMBRO & SON are authorised to offer the above Preference Shares and Debentures as follows:

£1 PREFERENCE SHARES AT PAR,

s.	d.	
5	0	payable on Application.
5	0	„ „ Allotment.
10	0	„ „ 15th October, 1899.
£1	0	0

£100 DEBENTURES AT PAR,

£10	per cent. payable on Application.
£30	„ „ Allotment.
£60	„ „ 30th August, 1899.
£100	

Scrip will be issued in exchange for letters of Allotment of Debentures, and on completion of all the payments, definitive Certificates will be issued in exchange for Scrip.

Payment for the Debentures may be made in full on allotment, or at any subsequent date before 30th August, 1899.

The interest on the Debentures and Preference Shares will be payable half-yearly, on 15th October and 15th April. Interest will accrue from date of payment of instalments, and the first payment of interest on the Debentures will be due on 15th October next, and the first payment of interest on the Preference Shares on the 15th April next.

The Debentures will be secured by conveyance to the Trustees of all the lands, buildings, and fixed machinery belonging to the Company, and by a floating charge over all the other property of the Company.

The Trust Deed securing the Debentures will provide that the Debentures shall be irredeemable unless the Company goes into liquidation, in which case the Debentures will be repayable at the rate of £110 per cent.

The Trust Deed will further provide that no further Debentures can be issued, ranking *pari passu* with or in priority to the present issue. The Articles of Association of the Company preclude the Company from creating any further Preference Shares without the sanction of two-thirds in value of the Preference Shareholders.

Trustees for the Debenture Holders.
LORD CLAUD J. HAMILTON, 4, Hans-mansions, S.W.
W. L. AINSLIE, Esq., 19, Surrey-street, Strand.

Directors.
*ARNOLD F. HILLS, Esq., Chairman, Monkhams, Woodford Green.
†WILLIAM PENN, Esq., Taverham Hall, Norfolk.
*E. DOUGLAS HARVEY, Esq., Beedingwood, Horsham.
*T. HERBERT HILLS, Esq., Blackheath.
*Directors of the Vendor Company. †Director of Messrs. John Penn & Sons, Ltd.

Bankers.
LONDON AND WESTMINSTER BANK, LIMITED, Lothbury.
BARCLAY & CO., LIMITED, Lombard-street.

Solicitors.
Messrs. J. A. and H. E. FARNFIELD, 90, Lower Thames-street, E.C.
Messrs. CHESTON & SONS, 1, Great Winchester-street, E.C.

Secretary.—HENRY P. HUSSEY, Esq.

Auditors.—Messrs. JAMES & EDWARDS, 5, Coleman-street, E.C.

Registered Office.
THE THAMES IRON WORKS, ORCHARD YARD, BLACKWALL.

City Office.—17, PHILPOT LANE, E.C.

West End Office.—ST. MARGARET'S MANSIONS, VICTORIA, S.W.

PROSPECTUS.

THIS Company has been formed to acquire and carry on the business of the Thames Iron Works and Shipbuilding Company, Limited, hereinafter called the Vendor Company, which was incorporated in the year 1872, and has since that date done a large and increasing business in all classes of shipbuilding and engineering.

For the purpose of developing their engineering business the Vendor Company has, during the present year, agreed to purchase the goodwill and undertaking of the old-established and famous engineering works of Messrs. John Penn & Sons, Limited, Greenwich and Deptford, together with the benefit of contracts for the construction of the machinery of 18,000 indicated horse-power each for two battleships for Her Majesty's Government.

The Vendor Company has at the present moment under construction:—Three first-class battleships for the British Admiralty, and one first-class battleship for the Japanese Government, these contracts alone aggregating over two-and-a-quarter millions sterling.

In addition to these contracts, the Vendor Company is engaged in building a large number of smaller vessels, and has many other contracts, among which may be mentioned the manufacture and upkeep of all the Lifeboats in the United Kingdom belonging to the Royal National Life-boat Institution.

The Vendor Company's Civil Engineering Department is full of work, having contracts in hand for the next two years. In addition, the Company owns two well-equipped dry docks, which are doing an excellent business every year, and an Electrical Department recently started, is also full of work.

The Vendor Company has adopted the plan of interesting its staff and employees in the profits earned. This arrangement has proved to work with every satisfaction to both sides, and since its initiation in 1892 there has been a complete immunity from labour troubles.

According to the Auditors' Certificate annexed, the profits earned by the Vendor Company (excluding the business of Messrs. John Penn & Sons) amounted for 1895, 1896, 1897 and 1898, to £146,064; or an average of £36,516 per annum.

Messrs. John Penn & Sons' works are being entirely remodelled, and good contracts have been secured for the next three years. No estimate is made of the earning power of this department of the Company's business, but with the improvements above referred to good results are anticipated.

The annual amount required to pay the interest on £200,000 Four per Cent. Debenture Stock is	£8,000
The annual amount required to pay the dividend on £300,000 Preference Shares is	£15,000

The Vendor Company's premises, together with those of Messrs. John Penn & Sons, have been recently valued by Messrs. Fuller, Horsey & Co., according to certificate annexed, and show a gross aggregate value as a going concern of £587,000, this valuation not including the many costly tools in use at the several yards.

The assets acquired are:—

Freehold premises, buildings, fixed plant, &c., as per valuation	£587,000
Tools, Utensils, &c., as standing in the Vendor Company's books	51,354
Stocks, Stores, &c., as „ „ „	51,507
Working Capital employed in the business	69,015
	£758,876
Add £50,000 cash Working Capital provided by the present issue	50,000
	£808,879

Nothing whatever is charged or paid for goodwill, and the issue is not underwritten. The Vendor Company pays the whole cost of the formation of the Company down to the first allotment of Shares, except the duties upon registration and stamp duties.

Mr. Arnold F. Hills, who has for the past fifteen years been the Managing Director of the Vendor Company, will enter into an agreement with the Company to act in a similar capacity for five years.

The Board of Directors is composed (with the exception of Mr. William Penn, who is a Director of Messrs. John Penn & Sons, Limited) of the Directors of the Vendor Company and Shareholders therein, and under provisions in the purchase contract, and in the Company's Articles of Association, the Directors of the Vendor Company will take part on behalf of the Company in entering into the contract and in carrying it into effect.

The purchase contract is made between the Vendor Company, and the Company, and is dated the 17th July, 1899. The purchase price has been fixed by the Vendor Company and its Directors at the sum of £750,000, payable as to £300,000 in Ordinary Shares and as to the balance in cash. The contract for the purchase by the Vendor Company of Messrs. Penn & Sons' business is dated 12th July, 1899, and is made between John Penn & Sons, Limited, and the Vendor Company.

The Company have entered into no other contracts, but the Vendor Company, which has carried on business for a great number of years, has in relation to its business from time to time entered into a number of trade and other contracts of an ordinary nature, many of which still subsist, and the benefit of which will accrue to the Company. These contracts, or some of them, may be contracts within Section 38 of the Companies Act, 1867.

Applicants for Shares must be deemed to have had full notice of all such contracts, and to have agreed with the Company as Trustee for the Directors and other persons liable to waive any claims they may have against such persons for not more fully complying with the requirements of the said Section, or otherwise, and every allotment of Shares will be made upon this condition.

Applications on the accompanying forms should be filled up and sent to Messrs. C. J. Hambro & Son, 70, Old Broad-street, London, E.C., accompanied by a cheque for the necessary deposit upon the amount of Preference Shares or Debentures applied for. Where no allotment is made, the Deposit will be returned in full. In case a smaller amount of Shares or Debentures is allotted than is applied for, the excess of the deposit will be applied in or towards payment of the amount due on allotment of the Shares or Debentures allotted.

Failure to pay any instalment when due will render the allotment liable to cancellation and the previous payments to forfeiture.

Prospectuses and Forms of Application can be obtained at the Company's Offices, or from Messrs. C. J. Hambro & Son.

The Purchase Contract, Draft Trust Deed, copies of the Memorandum and Articles of Association, and the Original Certificates of the Valuers and Accountants, may be seen at the Office of Messrs. Cheston & Sons, 1, Great Winchester-street, E.C.

70, Old Broad-street, London, E.C.

July 19th, 1899.

THIS FORM OF APPLICATION FOR PREFERENCE SHARES MAY BE USED.

To the Directors of the THAMES IRON WORKS SHIPBUILDING AND ENGINEERING COMPANY, LIMITED.

Gentlemen,—Having paid to Messrs. C. J. Hambro & Son the sum of £..... being a deposit of 5s. per Share due on application, I herewith request that you will allot me ..... of the above Preference Shares, upon the terms of the Company's Prospectus, dated 19th July, 1899, and I agree to accept the same or any smaller number that may be allotted to me, and I agree to pay the further instalments as provided by and at the dates specified in the said Prospectus, and I agree with the Company (as Trustee for the Directors and other persons liable) to waive any further compliance with Section 38 of the Companies Act, 1867, than is contained in the said Prospectus.

Name (in full).....
Address.....
Profession.....
Usual Signature.....
Date ....., 1899.

THIS FORM OF APPLICATION FOR DEBENTURES MAY BE USED.

To the Directors of the THAMES IRON WORKS SHIPBUILDING AND ENGINEERING COMPANY, LIMITED.

Gentlemen,—Having paid to Messrs. C. J. Hambro & Son the sum of £..... being a deposit of £10 per cent. due on application, I hereby request that you will allot me £..... of the above Debentures, and I hereby agree to accept the same or any smaller amount that may be allotted to me, and to pay the further sums due in respect thereof according to the terms of the Company's Prospectus, dated the 19th July, 1899.

Name (in full).....
Address (in full).....
Profession.....
Usual Signature.....
Date ....., 1899.

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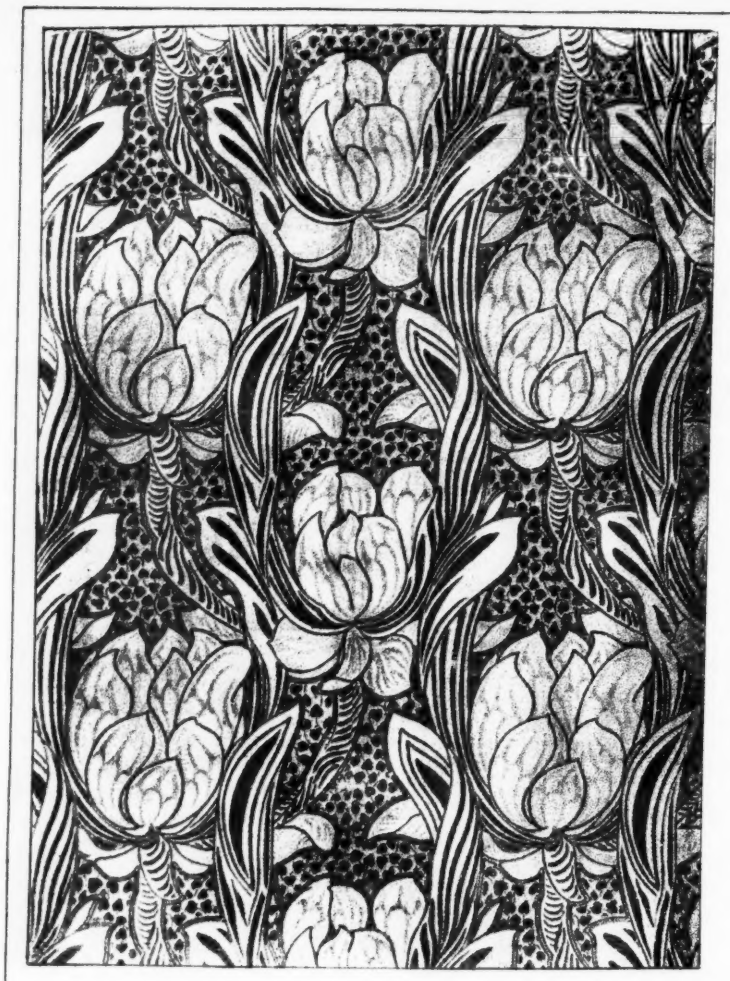

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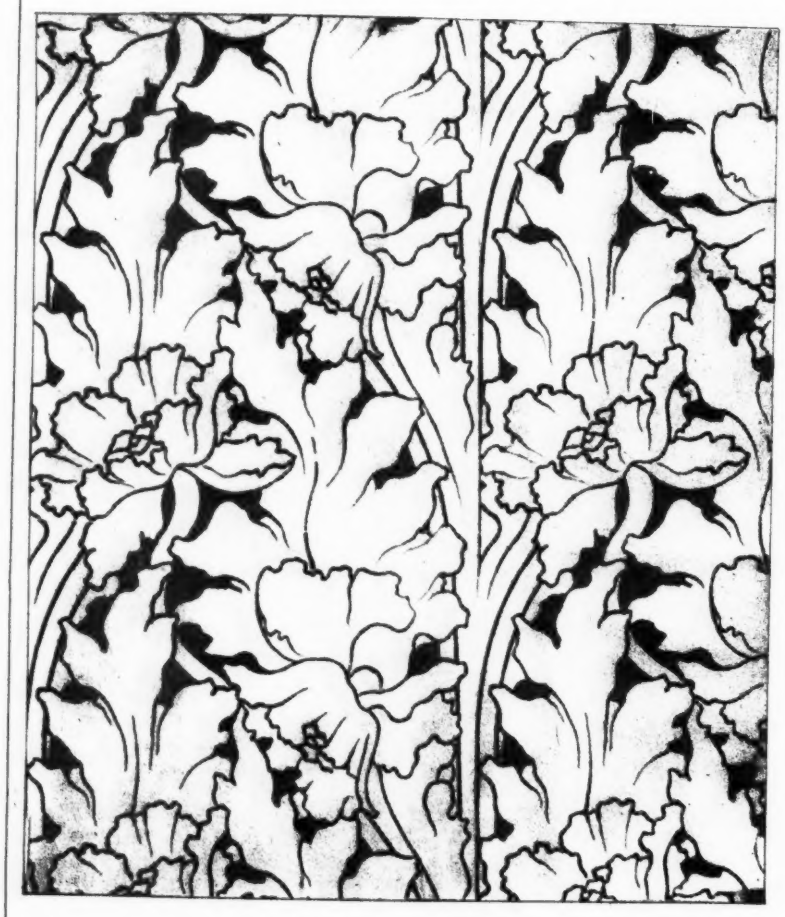

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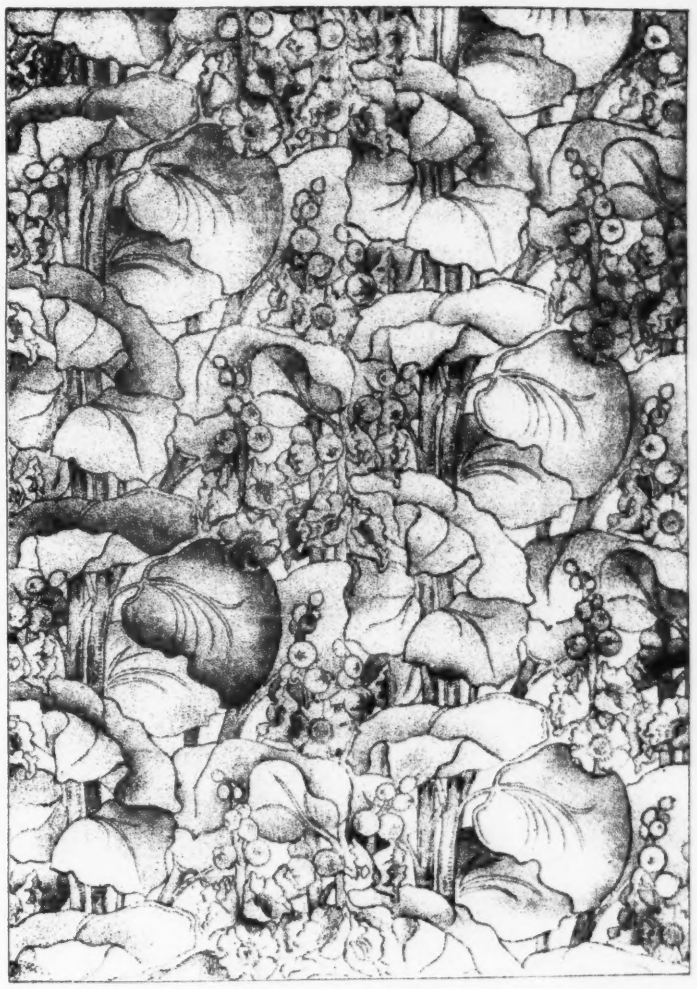

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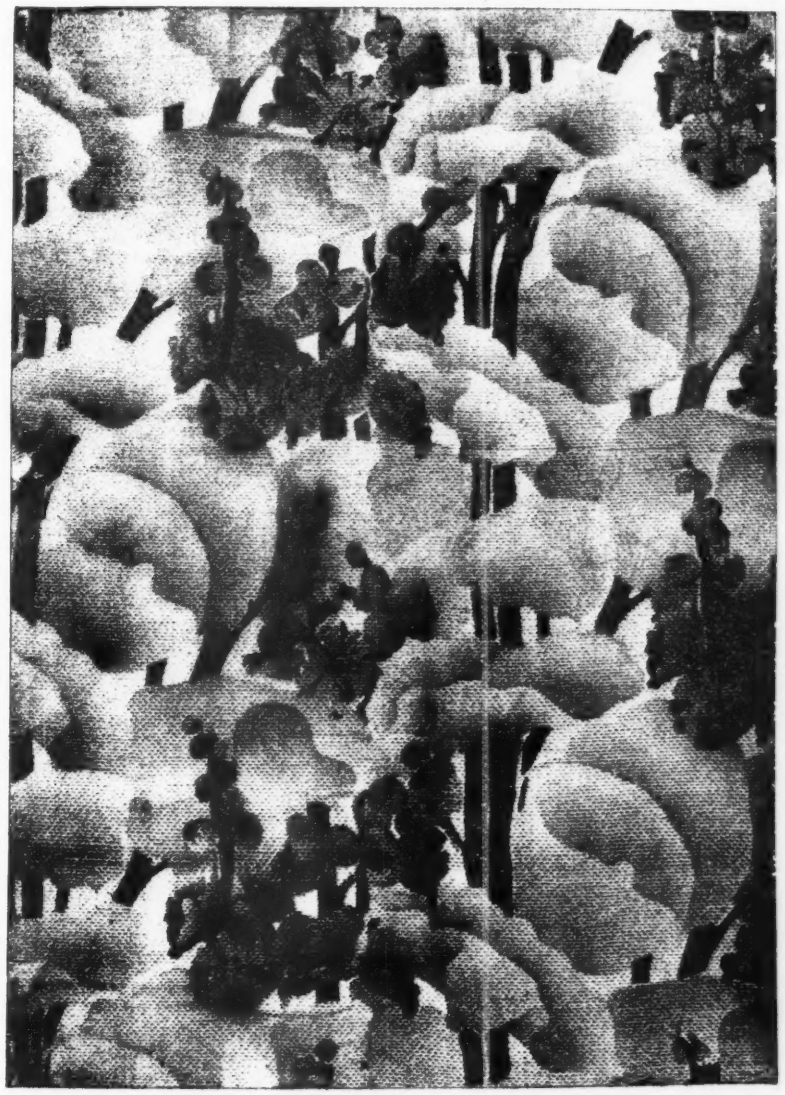

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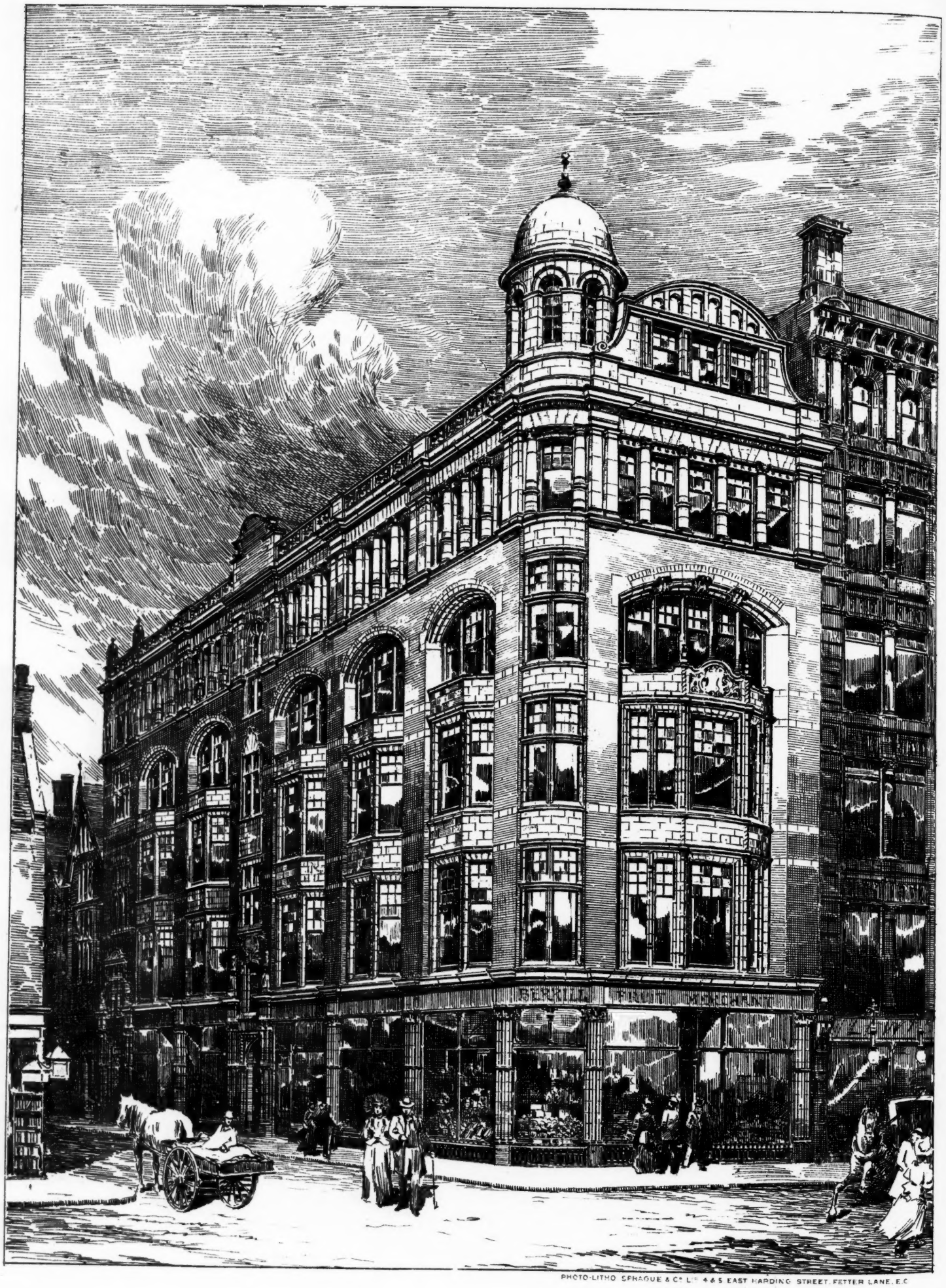

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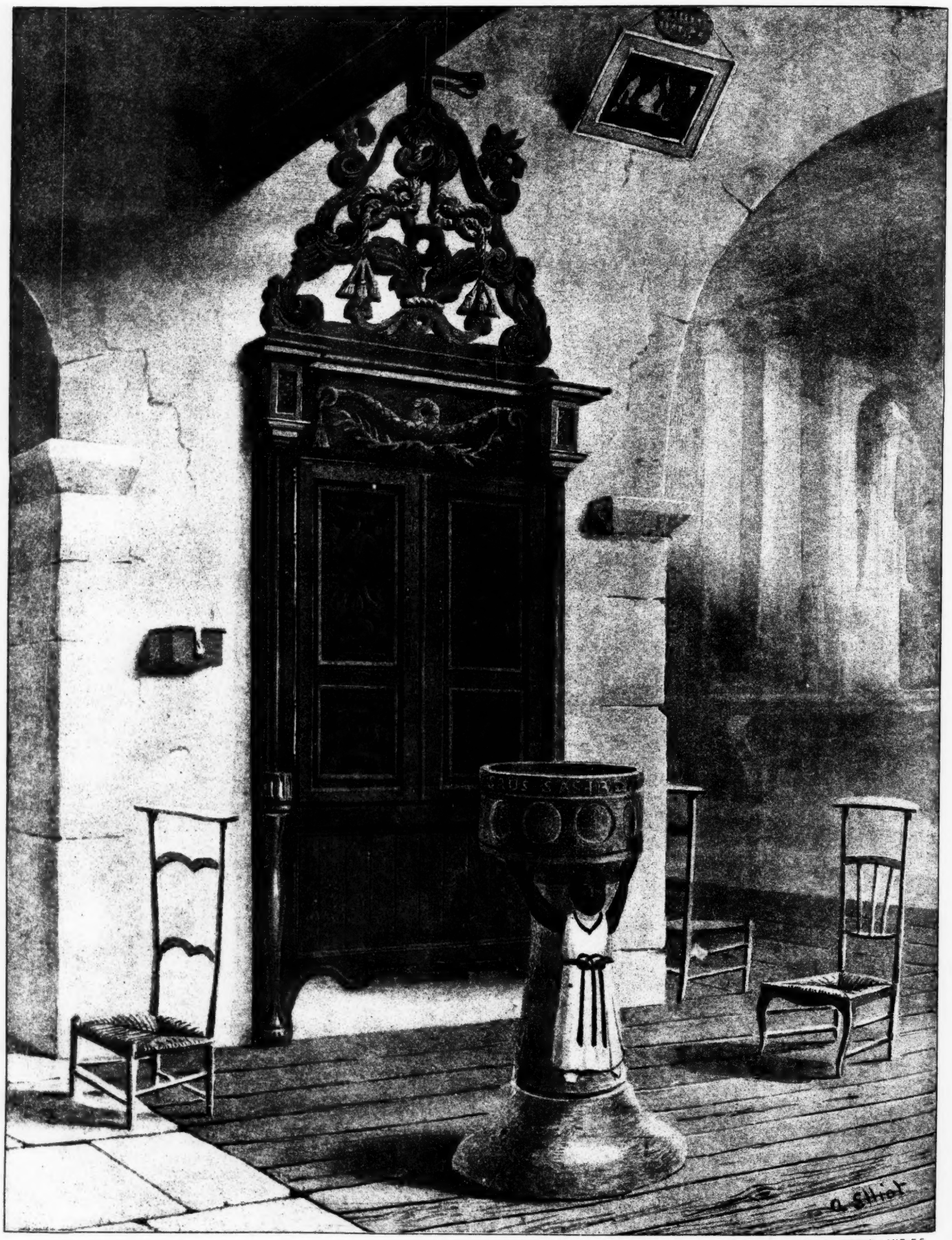

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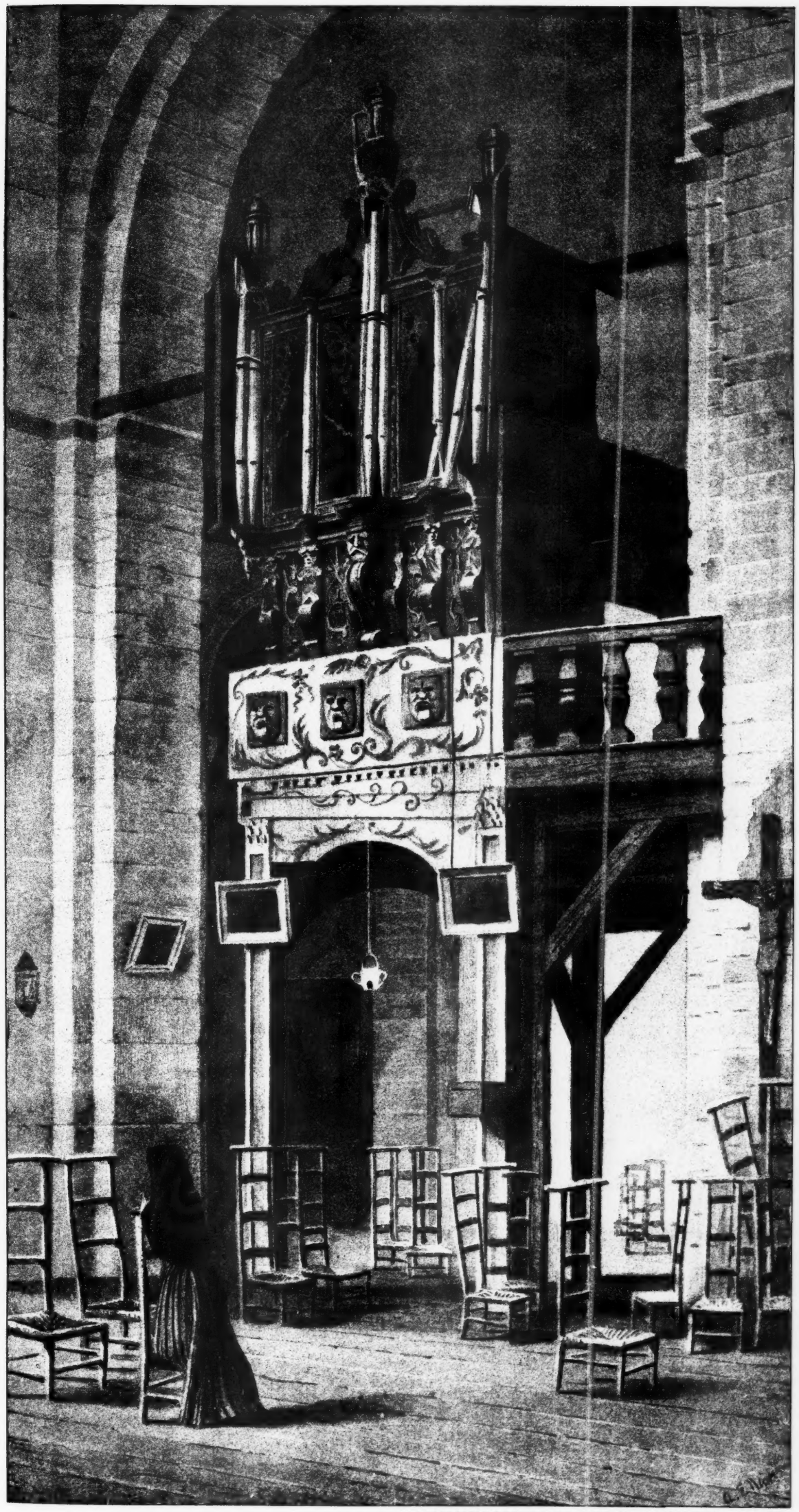

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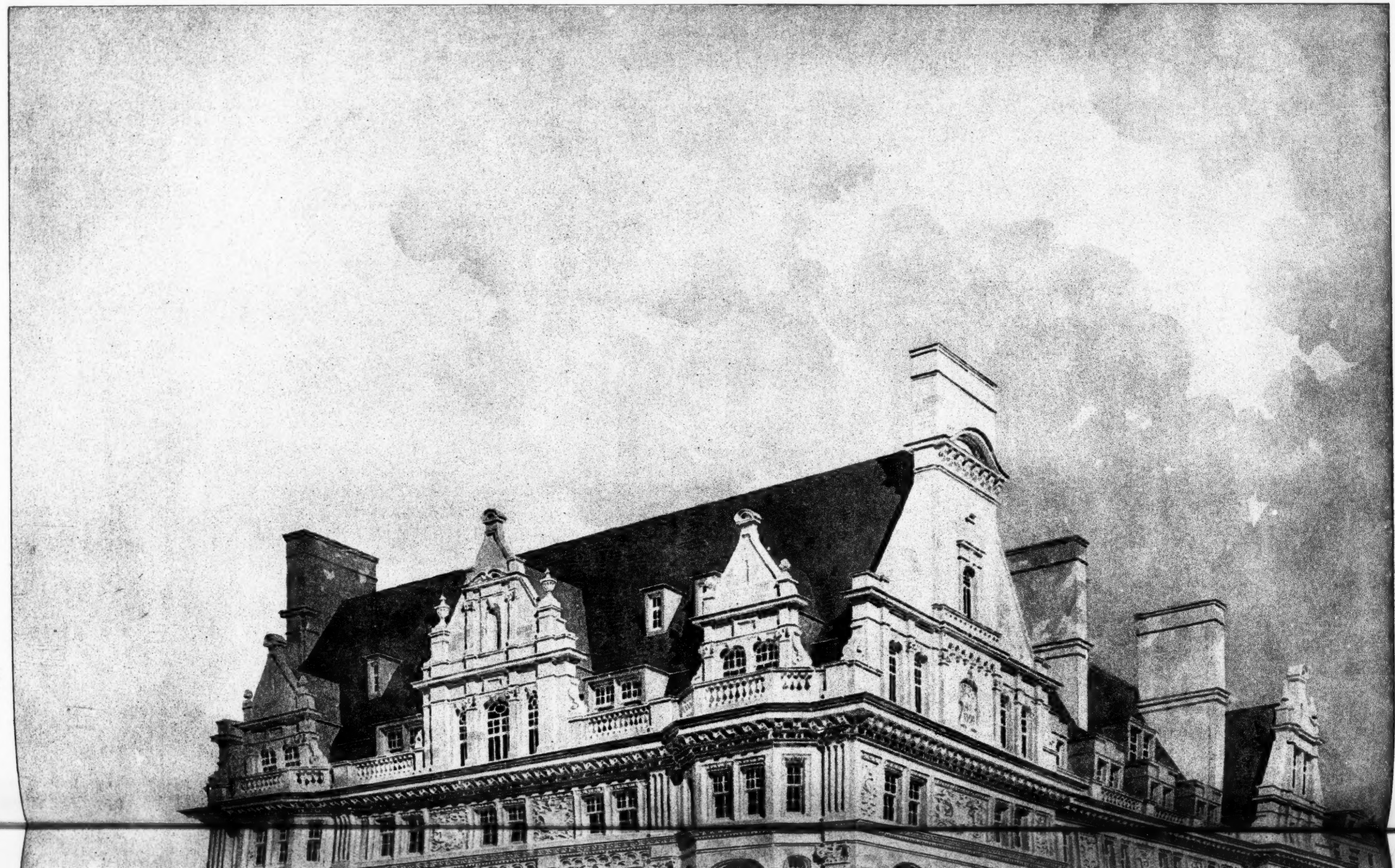

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